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THE AMERICAN JOURNAL OF PUBLIC HYGIENE

WITH the November, 1907, number the American Journal of Public Hygiene became the official organ of the American Public Health Association, Laboratory Section.

With the assumption of its new duties it has dropped its sub-title, becoming now the American Journal of Public Hygiene, a title expressive of the exact field it aims to cover.

By the new arrangement, all members of the American Public Health Association receive this Journal, while the present subscribers and members of the local association profit by the added valuable material with no increase in price.

We trust this is but one step toward the consummation of what seems to the editorial staff most desirable,—a closer relationship between the various local public health organizations and the national association.

B. R. RICKARDS, *Managing Editor.*

TIME LIMIT *VERSUS* CULTURE LIMIT IN DIPHTHERIA RELEASE

It is only by request that this subject is again presented in the Journal, for the health department in Providence has no desire to force its method on others, but only maintains that for that city it is the most satisfactory thus far tried. Although we release diphtheria patients, that is, remove the warning sign, after a certain time limit, we do not differ from Dr. Hill as to his most important contentions. It is claimed that the time limit is illogical, that it releases some too soon and confines others too long, and so works injustice. Granted, but the general management of this disease is illogical. There are only two logical methods of handling diphtheria. One is not to handle it, do nothing; the other is is isolate every infected person so long as diphtheria bacilli can be found in nose or throat. We all decline to adopt the first course, and it is impossible for us to adopt the second. We are all, therefore, forced into a more or less illogical compromise. Again Dr. Hill is undoubtedly correct in assuming that only a small part of our diphtheria is derived from convalescents. His two per cent is doubtless a fair estimate. Hence he rightly infers that the prevalence of diphtheria will not be noticeably affected by whatever method convalescents are controlled. The comparative statistics of the culture, and time limit methods of release, are said to prove little, and that is true. The difference in the results from the two methods must be so small, at most much less than two per cent, that it is quite likely to be masked by other and more important factors. Thus it can hardly be conceived that the time limit could give better results than cultures, yet this is exactly what the few available data appear to indicate. We do, however, believe that the figures demon-

strate that no appreciable danger is to be apprehended from the employment of the time limit method of release.

Dr. Hill wisely said that it is much more important to deal effectively with the early, unrecognized, and concealed cases, than it is to split hairs over methods of release. While it is admitted, as suggested by Dr. Hill, that few families, on the development of sore throat, would, before sending for a doctor, stop to estimate the probable duration of isolation, yet it seems almost self-evident that there will be less temptation to conceal cases, and greater readiness to call the physician early, and in mild attacks, if there is no general dread in the community of long continued periods of isolation, with enforced idleness of workers, and loss of school attendance for the children. In Providence there was much friction due to the culture method of release, and frequently great irritation on part of patients and physicians. It was a great relief to all concerned when the time limit method was adopted. There certainly seems to be less popular objection to admitting the presence of diphtheria than formerly. After a trial of nearly six years there is no disposition on the part of any to again make use of cultures for the termination of isolation. We admit that our time limit releases some too soon, and restrains others too long, and is consequently illogical, and we can, therefore, have no quarrel with those who, while applying scientific methods of restraint to the patient, are illogical enough to let other members of the family, whom they know are equally infected, go free.

CHARLES V. CHAPIN.

American Public Health Association

LABORATORY SECTION

IMPRESSION PREPARATIONS AND THE VAN GIESON STAIN FOR NEGRI BODIES *†

By LANGDON FROTHINGHAM, M.D.V.
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(*From the Bacteriological Laboratory*)

In the Journal of Medical Research for April, 1906, Volume XIV, New Series Volume IX, I published an article on "The Rapid Diagnosis of Rabies," in which I recommended the use of impression preparations from fresh Ammon's horn or cerebellum tissue fixed for a short time in Zenker's fluid and then stained with methylene blue and eosin. By this method the Negri bodies may be beautifully demonstrated in about one hour.

Shortly after the publication of this article Drs. Williams and Lowden, Journal of Infectious Diseases, May, 1906, Volume III, recommended the smear method of diagnosis, the smears stained in various ways, the most successful being Van Gieson's stain. This stain as then published was:

Water	10 c.c.
Saturated alcoholic fuchsin (Grübler) . . .	2 drops
Saturated aqueous methylene blue (Grübler)	1 drop

This method was communicated to me verbally in June, 1906, and since then I have used it with most excellent results in staining my impression preparations.

The impression preparation, however, has a great advantage over the smear or crushed tissue preparation recommended

* Read before the Laboratory Section, American Public Health Association, at Atlantic City, September 30, 1907.

† Langdon Frothingham. Zur Schnellen Darstellung Der Negrischen Körperchen. Zeitschrift für Tiermedizin. Volume XI, 1907, p. 378.

by Williams, namely, that the characteristic arrangement of the large nerve cells of the Ammon's horn is practically undisturbed by this method, and consequently one obtains a most excellent substitute for a section. Moreover, if Negri bodies are few in number, they will invariably be found in the large cells lying just outside the hylus. In impressions these cells are almost as readily discovered with a low power as they are in sections, and they are the first cells one should examine for Negri bodies. One looks for them in a perfectly definite situation, which of course cannot be the case in a smear preparation. In fact a successful impression preparation of the Ammon's horn is as good and usually better than a section for demonstrating these Negri bodies. The same is true to a certain extent of impressions of the cerebellum, although the Purkinje cells are not as numerous as in a section, nor as regularly distributed. Impressions of different parts of the cerebrum are also most satisfactory.

I have used impression preparations so frequently and so successfully with this stain of Van Gieson's that I believe it is quite unnecessary, in case Negri bodies are not found in them, to study sections. In my earlier communication I stated that, if Negri bodies were not found in impression preparations of Ammon's horn stained by the method then recommended, that it was wise to study Zenker fixed sections stained in the same way, as occasionally I had been able to find a few bodies by the section method, which had not been possible with the impressions. But since using the Van Gieson stain this has never been the case. In fact where bodies are few in number, they are not only comparatively more numerous in impression preparations stained in this manner, but are much larger and consequently more easily discovered than in Zenker fixed sections stained with methylene blue and eosin.

The method is so simple and rapid and the results so remarkable that I give it in detail, and also add my method

of removing a dog's brain, as it differs essentially from the usual practice.

1. Remove the calvarium. I find a wooden mallet and the hatchet chisel (Mallory & Wright) most satisfactory for this purpose, and never use a saw on a dog's head. Having dissected back the skin and removed the muscles as close to the skull as possible, place the chisel facing downwards and at right angles to the nose, upon the anterior part of the skull, a little anterior to the point of the V, (depending upon the kind of dog,) formed by the union of the frontal and parietal bones. A few sharp blows of the mallet will suffice to crack the skull, the fissure caused thereby extending downwards and often somewhat backwards on both sides. Place the point of the chisel at the base of the fissure on one side and cut backwards through the parietal and occipital bones (the cut may go through a portion of the temporal bone). Repeat on the opposite side, and the calvarium can now easily be pulled upwards and backwards with the chisel, and removed after the muscles still holding it at the base of the occipital bone are cut with a knife. Divide the dura with scissors and lay back on either side. Stand the dog's head on its nose (the nose being placed upon a board or close to the edge of a board, which should be about ten inches square and three-quarters of an inch thick). Tilt the head slightly forward, the exposed brain being towards the operator. Gravity now draws the brain downwards and outwards, and with slight assistance of forceps and curved scissors, (first dividing the spinal cord just back of the cerebellum,) the whole brain falls out upon the board. (When the work is completed, this board, holding the dissected brain, is put into the steam sterilizer.)

2. Beginning at the olfactory bulbs divide the cerebrum and cerebellum into two halves by cutting along the median line with the scissors.

3. From one-half cut off the cerebellum close to the cerebrum; open the lateral ventricle, thus exposing the Ammon's horn.

4. Dissect out the Ammon's horn with the scissors, and remove the unnecessary tissue from the edges. Then with scissors cut out a small disc at right angles to the long axis of the organ, from any part desired, and place it upon the board near its edge, so that one of the flat surfaces of the disc rests upon the board, the other of course being exposed. The peculiar and definite arrangement of the desired nerve cells is now seen as distinct white lines.

5. Place a thoroughly cleaned slide upon this disc of tissue. Press gently and lift suddenly. (The wood being more porous than the glass the tissue invariably remains upon the board, leaving an impression of its surface upon the slide.) Repeat, using a new portion of the slide and a little more pressure. A third impression is made by using still more force, and a fourth by using sufficient pressure to almost completely flatten the disc.

6. Before these impressions have dried place in methyl alcohol for one-half to two minutes or longer.

7. Remove from the methyl alcohol and cover with Van Gieson's stain. (It is unnecessary to wait until the alcohol has evaporated.) Warm gently for one-half to two minutes, over a small flame, until a thin vapor arises.

8. Wash in water, dry with filter paper and examine without cover glass, using a low power to orient the preparation, in order to discover where the largest and best cells lie, and these are immediately examined with the oil immersion.

Naturally some impressions are better than others, depending upon various conditions. For example, perfectly firm, fresh tissue gives as a rule a poorer impression than a tissue which has become slightly softened. Also, if the brain is solidly frozen, which often is the case when animals are forwarded in winter, it should be allowed to thaw before it is removed from the skull. Otherwise it is most difficult to properly dissect out the Ammon's horn, and impressions made from it while still frozen, or immediately after it has thawed, are apt not to be good, owing to the excess of moisture.

On the contrary, if the organ has slowly melted in situ, most excellent preparations are apt to result. Moreover, all of the impressions may not be equally good. Consequently I always make four, and, as a rule, at least one of these will be so satisfactory that the entire cell arrangement of the Ammon's horn may be made out with almost as much ease as in a section, though many of the cells, of course, are crushed and broken, and many bodies may be found outside of the cells.

It occasionally occurs that in such preparations of Ammon's horn no Negri bodies can be found, yet in the Purkinje cells of the cerebellum they may be present sparingly or indeed in large numbers. Therefore, it is my practice to make in addition to the four impression preparations of Ammon's horn, two of the cerebellum, all upon the same slide, from each suspicious case of rabies, which I have to examine. Preparations from the cerebellum are easily made from the cellular portions of the organ.

Moreover, it very occasionally occurs that neither in the Ammon's horn nor cerebellum Negri bodies can be found, yet they may be demonstrated in the cerebrum. The best portion of this organ to examine in the dog is perhaps the region of the Fissura Cruciate, and impression preparations from this portion are usually very successful.

Van Gieson's stain as told me was made as above mentioned, but shortly after I began its use I observed that often the cell protoplasm was stained too intensely blue, and I found that I obtained uniformly better results by making the stain up as follows:

Water (faucet water)	20 c.c.
Saturated alcoholic solution of fuchsin . . .	3 drops
Saturated aqueous solution of methylene blue.	1 drop *

* Van Gieson in his article in the Centralbl. f. Bakt. Erste Abt. Bd. XLIII, Heft 2, gives his present stain as follows:

Saturated alcoholic solution of rose anilin violet	2 drops
Saturated aqueous solution of methylene blue	1 drop
Distilled water	10 c.c.m.

The stain should be made up freshly every day, as the Negri bodies fail to take up the red readily after the solution is six to eight hours old.

The Negri bodies stain from a pale pink to a purplish red and often contain numerous minute dark blue dots. The cells stain more or less blue, the red blood corpuscles not at all or are yellowish in color, rarely pinkish.

I would like to call attention to the following staining peculiarity, namely, that not infrequently the Negri bodies in the Purkinje cells stain a very pale pink, while those in impressions of the Ammon's horn, made upon the same slide and stained at the same time, are deeply stained. I have also observed this same peculiarity in the sections.

Having examined several hundred brains for Negri bodies and having tried many different methods, I recommend today above all others for the rapid staining of the Negri bodies, and, therefore, for the rapid diagnosis of rabies, Van Gieson's stain combined with my impression preparations, but in order to bring out to the best advantage the finer structure of the bodies, I prefer my earlier method, namely, Zenker fixed impression preparations stained with eosin and methylene blue.

THE DIAGNOSIS OF RABIES*

By ANNA W. WILLIAMS, M.D.

In the New York City Research Laboratory, for the past two years, or since we have used the smear method in routine diagnosis, there have been 628 cases in all examined, including suspected rabies and controls.

These are divided into two groups, the first comprising the cases sent in from outside for diagnosis only, and the second the experimental cases.

When we began the work, in order thoroughly to test the smear method in diagnosis we used comparative tests on a long series of cases, including many diseases other than rabies. The comparative tests were animal inoculations and a study of sections. The results obtained from a study of 141 cases were published in January and May, 1906, and our conclusions were that the Negri bodies as shown by smears, as well as by sections, are specific for hydrophobia, and that the smear method for examining the Negri bodies is more rapid and efficient than any other method published. Since then, in our routine work we have considered the presence of the Negri bodies in smears as diagnostic of rabies and have made no further tests except in those cases which we have used in our experimental work. Through this experimental work, however, we have added 112 cases to the list of those which had the comparative tests and our former conclusions have been more firmly established.

Before analyzing the 487 cases examined since May, 1906,

*Read before the Laboratory Section, American Public Health Association, at Atlantic City, September 30, 1907.

it may be well to state that by Negri bodies we do not mean any indefinite cell inclusion such as those found by Van Giesen in human meningitis, or by a few others in cats' brains, or by ourselves in dog and cat distemper. The more such indefinite bodies are found in other diseases, the greater is the evidence in favor of the specificity of the true Negri bodies.

Of the 487 cases, 260 are street cases and 227 experimental. Of the 260 street cases 185 showed typical Negri bodies, and 75 showed no definite forms. All of the latter and 29 of the former were inoculated into animals. The 29 all gave positive results.

Of the 75 classed under doubtful cases, 12 brains were too decomposed to show anything, 4 of these were positive on animal inoculations; 8 brains were soft and showed suspicious bodies, 2 of these were positive; 4 were in good condition and showed suspicious bodies, 2 of these were positive; the 59 remaining ones showed absolutely no suspicious bodies and all were negative to animal inoculations.

We see, then, that in all of our work controlled by careful animal inoculations we have never yet failed to have typical rabies develop in animals inoculated with material showing definitely-structured Negri bodies.

Negative results after inoculation with such material must be interpreted by us at present as due to some error in technic, such as regurgitation or hemorrhage at the time of inoculation, emulsion improperly made, not enough of the virulent material taken because of localization of the organisms, etc. Possibly individual resistance of the animal inoculated might play a part. We have used principally guinea pigs, and some of them have shown enough irregularity in regard to the time in which they have come down with the disease to suggest a varied individual susceptibility, if other factors can be ruled out. So far, however, as I have stated, we have gotten no negative results with material showing Negri bodies.

On the other hand, some material in which we have failed to demonstrate typically-structured bodies has produced rabies. All of this material, however, since we improved our technic, has shown suspicious small forms similar to those found in rabbit fixed virus. But any decomposing brains may also show in smears, bodies very similar to these tiny forms, therefore, it is difficult to rule out rabies in such cases. Such cases have become less frequent with the improved technic, and if, as we believe, the Negri bodies are living organisms, there is strong reason to hope that in time we may clearly demonstrate in smears the presence of these tiny specific forms.

Until such a time, however, animal inoculations must be used in these cases. Of course, the animal test will probably always have to be used with brains that are too decomposed to recognize any formed elements except bacteria, unless a reliable chemical test can be discovered.

So far with us fresh brains showing no Negri bodies and no suspicious forms have not produced rabies, but a few observers have claimed that such material has produced the disease. Therefore, until we can standardize our technic we must in all such cases use animal inoculations. We may, however, be reasonably certain that a case showing such negative material was not a case of rabies.

It is possible that some of these doubtful cases if killed early in the disease, before there has been time for general development of the virus in the brain, may have virulent sputum. The virulence of the sputum is said to be due to the passage of the virus through the salivary glands. We are now carrying on a series of experiments to test the comparative virulence of these glands and the brain in true and doubtful cases. Our results are yet too few to be tabulated.

We have already had an interesting case in which this method was apparently helpful. A Russian wolfhound with

a typical symptoms of dumb rabies was sent in for diagnosis. The brain showed many small fixed virus-like forms, which were considered suspicious. Guinea pigs were inoculated from brains and glands. Treatment was begun in a small child whose scratched hand had come in contact with the saliva. After twelve days, as no symptoms were observed in the guinea pigs, the treatment was discontinued. The pigs from the brain came down six and one-half weeks after the inoculation, while those from the glands are still alive ten weeks later. It was decided not to give more treatment to the child for this reason.

The question as to whether the sputum may be virulent and the glands not, is an interesting one. It has been stated that the secretions from the mucous membranes of the mouth and naso-pharynx may also be virulent. If this were so, it would of course throw out negative results from gland inoculations. We are attempting also to solve this question.

The localization of the Negri bodies is another important point in making diagnoses. We have found well-developed bodies distinctly localized in different parts of the brain in several instances. In one horse there were small widely-scattered areas of well-structured forms throughout the cerebellum, while tiny, indefinite forms were scattered through the rest of the brain examined.

In two human brains well developed forms were found in the corpus stratum and not in the rest of the brain. In several dogs the localization has also been marked.

The technic of our smear method is as follows:

1. The smears are made by pressing between a glass slide and a cover glass a small, thin section of the gray matter from (*a*) the cerebral cortex, (*b*) Ammon's horn, or (*c*) the cerebellum; the material is spread along the slide by moving the cover glass down with the finger.

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2. When partly or completely air-dried the smears are fixed for about ten seconds in neutralized * methyl alcohol to which one-tenth per cent of picric acid has been added. The excess of the fixative is removed by blotting with fine filter paper.

3. The fixed smears are stained in the following solution:

Saturated alcoholic solution of fuchsin	1 drop
Saturated alcoholic solution of methylene blue	5 drops
Distilled water	10 c.c.m.

NOTE. — This solution, which is a modification of the one proposed by Van Gieson for staining the Negri bodies in smears, changes rather quickly at room temperature, but kept in the ice-box it gives good results for an indefinite time.

The stain is poured on the smear and held over the flame until it steams. The smear is then washed in tap water and blotted with fine filter paper.

With this stain the Negri bodies appear a magenta, the nerve cells blue, and the red blood cells yellow or salmon colored.

The following is the routine method of handling our material:

If the material is fresh, smears are made from the three parts mentioned in the slips and according to the method described there. If nothing is found, smears are made from various other parts of the brain. If still nothing is found, and emulsion is made of good-sized pieces from the different parts of the brain and intracerebral inoculations are made into three guinea pigs, about one-fourth c.c. of the emulsion is inoculated. An emulsion is also made of the different parts of the brain in glycerine for later inoculations, if for any reason the first should fail. Sterilized, neutral glycerine is used. These emulsions remain active in the ice-box for over three months.

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*The wood alcohol is neutralized by adding sodium carbonate ($Na_2 CO_3$) about .25 gms. to 500 c.c. of the alcohol.

Contaminated, doubtful material is made into a weaker emulsion in order to lessen the number of bacteria.

The glycerinated emulsion made from part of the same material is inoculated after two weeks, unless positive results have been gotten from the weak emulsion.

THE DETERMINATION OF INTESTINAL BACTERIA IN MILK*

By DANIEL D. JACKSON
Mt. Prospect Laboratory, Brooklyn, N.Y.

A demonstration of the value of the lactose-bile medium for tests of intestinal bacteria in water has led to its use in the determination of the amount of contamination by fecal matter in milk. The fermentation test, using dextrose broth, gives utterly unsatisfactory results with milk, but the restraining action of lactose-bile solution on the growth of species other than B. coli admits of the use of the latter medium. This solution cuts out the growth of the other gas formers and stops the overgrowth caused by the more rapid multiplication of other bacteria, together with the consequent detrimental products of their metabolism.

The medium is prepared by sterilizing fresh undiluted ox bile directly after being drawn from the animal. It should first be tested for acidity. This is best done by adding ten cubic centimeters of bile to ninety cubic centimeters of distilled water, boiling for about one minute and titrating with twentieth normal sodium hydrate, using a few drops of phenolphtalein as an indicator.

The final endpoint is best found by examining the edge of the liquid in the six-inch porcelain dish for the appearance of the pink color. If more than four cubic centimeters of the twentieth normal sodium hydrate is required, the acidity is more than 20 by the Fuller scale and the bile should be rejected as unfit for use, as neutralization does not remedy the defects caused by previous bacterial action. The usual and best acidity is about 5 Fuller scale.

* Read before the Laboratory Section, American Public Health Association, at Atlantic City, September 30, 1907.

The sterilization is best made in two-quart bottles, in an autoclave for 30 minutes at 15 pounds pressure. If gallon bottles are used, 45 minutes are required. By this sterilization the ropy consistency is changed and the albuminous material settles to the bottom of the bottle. These bottles of the sterilized bile are then kept in the ice chest.

When ready to be used the watery fluid is decanted and the last portion filtered through cotton. One per cent of lactose previously dissolved in a small amount of hot water is added and thoroughly mixed and the fermentation tubes are filled with the fluid. The tubes are then plugged with cotton and sterilized, taking care to raise and lower the temperature slowly, so as not to cause foaming and consequent blowing out of the plugs.

The fermentation tubes used are 140 mm. long and 15 mm. in diameter, having an elongated bulb 38 mm. in its shortest diameter. This admits of the addition of 10 c.c. of the milk to be tested without too great a dilution of the medium. They are set in copper racks, holding twelve tubes, having six on each side, back to back.

If, instead of using the liquid medium for keeping and transporting purposes, the solid is preferred, the decanted and sterilized bile may be evaporated to dryness and kept in tightly corked jars. In this case 110 grams per liter is used to make up the liquid media.

Contrary to expectation, it has been found that under ordinary conditions, considerable numbers of other bacteria being present, *B. coli* does not increase in milk, or if so only to a very slight extent and then gradually dies out. On this account the amount of the original contamination may be determined.

The dilutions required for the test fall within the same lines as in water analysis. Amounts of one-tenth, one and ten cubic centimeters of milk are added to the fermentation tubes and incubated for two days at 37½ degrees centigrade.

If *B. coli* is present, gas will be formed, usually in two days, which will occupy at least twenty-five per cent of the length of the tube. In tubes where the gas is almost twenty-five per cent on the second day, the third day test is used.

Attention should be called to the fact that at an incubation temperature of 40° C. the lactose-bile test is *not* properly developed in testing either water or milk.

A clean milk, or one that has been pasteurized, rarely gives positive tests in ten cubic centimeters.

A milk that has been carelessly handled gives the test in one cubic centimeter and sometimes also in one-tenth of a centimeter.

A contaminated milk gives positive tests in all three amounts taken, and the positive results may at times be obtained even in much higher dilutions.

THE RELATIVE VALUE OF DEXTROSE BROTH, PHENOL BROTH AND LACTOSE BILE AS ENRICHMENT MEDIA FOR THE ISOLATION OF *B. COLI.*

By S. C. PRESCOTT and C-E. A. WINSLOW

From the Biological Laboratories of the Massachusetts Institute of Technology

One serious drawback to the use of dextrose broth for preliminary enrichment in the isolation of *B. coli* has long been recognized. This drawback lies in the fact that the organism, when present in the enrichment tube, is occasionally overgrown by other forms and fails to appear upon the litmus-lactose-agar plates inoculated from it. In order to obviate this possibility the use of phenol broth has been suggested, in the hope that phenol would check the growth of the interfering forms without inhibiting the colon bacillus itself. With highly polluted waters the phenol broth method sometimes works successfully, permitting the isolation of *B. coli* when the dextrose-broth method fails. Phenol is, however, inimical to the colon bacillus as well as to other forms, and when only a few of the intestinal organisms are present they often fail to develop. Irons (1901), in the examination of 119 samples of waters, not heavily polluted obtained 56 positive results with dextrose broth and only 37 with phenol broth.

When Jackson (1906) suggested the use of lactose bile as an enrichment medium it was hoped that a more definite selective action would be attained. It was claimed that the bile medium would actually favor the increase of *B. coli*, while retarding the growth of streptococci and killing off

* Read before the Laboratory Section, American Public Health Association, at Atlantic City, September 30, 1907.

most other body temperature forms. Jackson (1907) and Sawin (1907) report good results from the use of lactose bile.

There is little doubt that with sewage or very highly polluted waters the bile medium often shows the presence of gas-forming organisms which are entirely lost in dextrose broth. Sawin's work and that of Longley and Baton (1907) both bear out this view. In less heavily polluted waters, such as those with which we are ordinarily concerned in bacteriological water analysis, conditions are different. The danger of overgrowth is less serious and the likelihood that the few *B. coli* present may not develop in lactose-bile is greater. Longley and Baton (1907), from their work on Potomac water, conclude that "the value of the test with the bile lactose on unpolluted or slightly polluted water, such as we have to deal with the greater part of the time, is uniformly less than with dextrose broth, except in the larger quantities of water." Sawin's tables show the same phenomenon. Although he states in the text that with waters of good quality there is little difference between the two methods, his figures show for wells and lakes 11 per cent of positive results in 1 c.c. with dextrose broth and only 4.3 per cent in lactose bile.

Sawin's argument for the lactose-bile medium rests on a comparison of presumptive tests alone, typical gas formation in lactose bile and dextrose broth, respectively, being considered positive. Various observations during the last few years have tended, however, to throw doubt upon the value of the presumptive test as an indication of the presence of *B. coli*. It appears probable that gas formers other than *B. coli* may frequently be found in waters which are not sewage polluted. The crucial test of the two methods can only be made by isolating sub-cultures, working them out in detail, and comparing the number of positive results in the two cases. Weston and Tarbett (1907) report the result of such an examination of sixty-three samples of water. Eighteen

gave no gas formation with either medium and twenty-four gave gas with dextrose broth, but not with bile; of these latter one showed *B. coli*. Eighteen samples gave gas with both media, and five in each case showed typical *B. coli*.

During the past spring and summer 176 samples have been examined in this manner under our direction in the laboratories of the Massachusetts Institute of Technology, and the results throw some additional light upon the comparative value of the bile and dextrose broth enrichment processes. The samples were in all cases collected from surface sources, streams, ponds and pools which were more or less subject to pollution, exactly the sort of samples of which a bacteriological examination is most commonly desired. In each case one cubic centimeter portions of the sample were incubated in three enrichment media, dextrose broth, lactose bile and either lactose broth or phenol broth. Gas formation was recorded for three days and as soon as gas appeared litmus-lactose-agar plates were made and subcultures isolated and identified by the standard procedure of the American Public Health Association (except that motility was not determined).

We have arranged our results in four general groups. Positive results are those in which typical *B. coli* were isolated and negative results those in which no gas was formed in the enrichment medium. Atypical results are recorded when organisms were isolated which produced gas in dextrose broth and acid in lactose agar, but failed to give the reactions of *B. coli* in milk, peptone broth, nitrate solution or gelatine. The term "gas formation" has been used to designate that case in which gas formation in the enrichment medium was followed by negative litmus-lactose-agar plates. It may obviously be due to one of three causes, either to the development of a colon-like organism in the enrichment medium which is so overgrown as not to appear on the plate, or to the presence of a form which produces gas in dextrose

broth but no acid in lactose agar, or to the presence of forms which symbiotically ferment, and alone do not. In thirty-five cases this point was determined by reinoculating from the blue plates into the original enrichment medium. In thirty-one out of the thirty-five cases gas was again produced, showing that we had generally to deal with a form which fermented dextrose broth but formed no acid in lactose.

The first series of samples were collected and examined by Mr. H. R. Crohurst during the months of April and May, and the sum total of his results with each enrichment medium is as follows. With dextrose broth he obtained 25 positive results and 19 negative results; in 21 cases gas formation was followed by negative lactose-agar plates and in 3 cases atypical forms as above defined were isolated. With phenol broth he obtained 18 positive and 17 negative results; in 17 cases gas formation was followed by negative lactose-agar plates and in 3 cases atypical forms were isolated. With lactose bile he obtained 21 positive and 39 negative results; in only 7 cases was gas formation followed by negative lactose-agar plates, and one atypical form was isolated.

The second series of samples were collected and examined by Mr. A. F. Stevenson, also in April and May, 1907. With dextrose broth he obtained 12 positive and 21 negative results; in 11 cases gas formation was followed by negative lactose-agar plates and 8 atypical forms were isolated. With phenol broth he obtained 16 positive and 30 negative results; in 5 cases gas formation was followed by negative lactose-agar plates and one atypical form was isolated. With lactose bile he obtained 11 positive and 37 negative results; in only one case was gas formation followed by negative lactose-agar plates and three atypical forms were isolated.

Summing up these two series it appears that dextrose broth yielded 37 positive results, phenol broth 34 and lactose bile 32. There is, therefore, no evidence here of any advantage from the use of the two media of special inhibiting power.

The third series of samples were collected and examined by Mr. W. C. Folsom during June and July of 1907. He used for enrichment, dextrose broth and lactose bile as in the two first series, but for the third medium he used lactose broth instead of phenol broth. Everything in this series was done in duplicate, two tubes of each enrichment medium being inoculated and cultures worked out in detail from each. The effect of this procedure was to decrease materially the number of samples failing to give positive or negative tests. In many cases a negative lactose-agar plate was obtained after gas formation from one tube, while the plate from the duplicate tube yielded *B. coli;* often, too, after both lactose-agar plates were positive, one culture would prove atypical and the other typical. With dextrose broth, Mr. Folsom obtained 33 positive and 16 negative tests; in 6 cases gas formation was followed by negative lactose-agar plates and a single atypical result was recorded. With lactose broth he obtained 34 positive and 14 negative tests; in 7 cases gas formation was followed by negative lactose-agar plates and one atypical test was recorded. With lactose bile he obtained 32 positive and 22 negative tests; in one case gas formation was followed by negative lactose-agar plates and 1 culture proved atypical. A comparison of these results with those of the two preceding series shows clearly the advantage of duplicate determinations in eliminating dubious results.

The media employed in all these experiments were prepared in accordance with the formulæ of the American Public Health Association Standard Methods Committee, or of the authors who suggested the use of the particular media in question.

Comparing the lactose and dextrose broths used in this series it appears that the results are practically identical.

The results for dextrose broth and lactose bile in all three series have been added and tabulated in Table I. "Gas

formation," as noted above, means that gas was formed in the enrichment medium, but that lactose-agar plates were negative. A negative result means that no gas was formed. "Atypical" means that a fermenting organism was isolated which failed to give *B. coli* reactions in milk, peptone solution, nitrate solution or gelatin.

TABLE I.

COMPARATIVE RESULTS OF *B. COLI* ISOLATION DEXTROSE BROTH AND LACTOSE-BILE

RESULT	NUMBER OF SAMPLES	
	Dextrose Broth	Lactose Bile
Positive	70	64
Negative	56	98
Atypical	12	5
Gas formation	38	9
Total Samples	176	176

These results seem to indicate that for waters which are not heavily polluted the lactose-bile medium is on the whole inferior to dextrose broth as an enrichment medium. It does indeed prevent the development of the organisms which cause overgrowth and of the gas formers other than *B. coli*. Thus the proportion of cases in which gas formation was followed by negative litmus-lactose-agar plates was materially decreased, as was the proportion of atypical cultures isolated. The bile medium, however, is also inimical to the colon bacillus itself, and the net result of its use with waters of this class is to diminish appreciably the number of positive isolations.

The use of the bile medium saves the bacteriologist from the trouble of replating a certain number of samples which, when replated, show only negative results. This occurred in 36 out of 176 samples in the work reported. Against this advantage must be set the longer time required for incubation in the bile medium. In dextrose broth when gas was formed it appeared in 66 per cent of the tubes in one day and in 97 per cent in two days; in phenol broth gas appeared in 52 per cent of the tubes in one day and in 98 per cent in two days; in lactose bile gas appeared in only 16 per cent of the tubes after one day, in 73 per cent after two days and in the remaining 27 per cent only after three days. Finally the fact that a certain percentage of samples containing *B. coli* gives negative results with lactose bile and a positive test with dextrose broth must be considered a serious drawback, even though the percentage is a small one.

In this discussion we have considered the bile medium only as a preliminary enrichment medium in the process for the complete isolation of *B. coli*. For this purpose, it is inferior to dextrose broth. As a presumptive test, when the full working out of *B. coli* is impossible, the bile medium offers distinct advantages. If the proportion of cases in which *B. coli* was actually isolated (70 out of these 176 samples) be taken as 100, the percentage of complete, positive results, using bile for preliminary enrichment, was 91. If the dextrose broth fermentation test alone had been considered positive, 120 "presumptive" tests would have been obtained, or 171 per cent of the real number. On the other hand, the positive presumptive tests in bile, considering all gas formation as positive, would have given 78 positive results, or 111 per cent, only slightly in excess of the true value. As a presumptive test, the lactose-bile medium seems to yield a fair approximation to the truth, being far superior in this respect to dextrose broth.

REFERENCES

Irons, E. E., 1901. Some Observations on Methods for the Detection of *B. coli communis* in Water. Transactions of the American Public Health Association, 1900 Meeting, XXVI, 310.

Jackson, D. D., 1906. A New Solution for the Presumptive Test for *Bacillus coli* Biological studies by the pupils of William Thompson Sedgwick, Boston, 1906, 292.

Jackson, D. D., 1907. The Use of Lactose Bile Medium in Water Analysis. Journal of Infectious Diseases, Supplement No. 3, May, 1907, 30.

Longley, F. F., and Baton, W. U. C., 1907. Notes on the Determination of *B. coli* in Water. Journal of Infectious Diseases, IV, 397.

Sawin, L. R., 1907. Experience with Lactose Bile Medium for the Detection of *B. coli* in Water. Journal of Infectious Diseases, Supplement No. 3, May, 1907, 33.

Weston, R. S., and Tarbett, R. E., 1907. Comparative Results Obtained by the Use of Lactose Bile and Dextrose Broth Media for the Detection of *B. coli* in Water. Journal of Infectious Diseases, Supplement No. 3, May, 1907, 39.

PRESERVATIVES IN FOOD AND THE EFFECT THEREOF ON THE PUBLIC HEALTH*

By DR. H. W. WILEY,
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It is well known that there is a wide difference of opinion among experts respecting the effect of certain chemicals added to foods as preservatives upon health. As is natural in such cases, there are two sides to the question, and it is attacked constantly from two points of view. The medical officer of health naturally looks at the use of preservatives solely from the effect which they have upon health; the manufacturer of food products looks at the use of preservatives solely from its relation to manufacture and trade. There is a third point of view which should be occupied by experts who look at the subject from a purely scientific point of view, that is, men who are not interested officially in conserving the public health, nor in any commercial way, in manufacturing. It is not meant in this paper that because a man is interested professionally in one side of a question, he fails to see the merits of all sides, nor is it maintained that the unbiased expert is any more able than either of the others to discuss the subject. The only contention in this case is that the report of the unbiased expert is likely to have more weight with the community, or with the court, than the testimony of the other experts, conceding that they all have equal merit. That experts should honestly arrive at opposite conclusions is not any matter of astonishment. The methods of conducting the investigation, the subjects on which the experiment is conducted and the points which are kept

*Read before the Laboratory Section, American Public Health Association, at Atlantic City, September 30, 1907.

principally in view, the time over which the investigation is conducted, the quantities of the materials experimented with, all have their effect. The particular experimental work which is set forth in this paper was undertaken to show that a certain beverage, namely, cider, which is very commonly preserved in this country by the addition of benzoate of soda, might be manufactured of a better and superior quality, and kept without the addition of any preservative whatever. The work was conducted under my instructions in Nebraska, by one of my assistants, Mr. H. C. Gore. A detailed account of the experimental work is contained in his report, in which it is shown that, by the selection of the proper kind of fruit, by care in the crushing of the fruit and the expression of the juice, by passing the juice twice through a cream separator, and by sterilization, cider of extraordinary good quality was secured which, when enclosed in sealed cans, keeps indefinitely. It is also shown that it keeps for a very long time in barrels and other wooden containers, and, therefore, that the claims made by the manufacturers of this line of goods that cider cannot be made without the use of a preservative are baseless. As an addendum to this work, statistics are given of the opinions of experts on the advisability of using preservatives in foods.

In order to obtain the views of eminent physiologists and hygienists, health officers and physicians in the United States as to the propriety of using preservatives in foods, a list of questions was sent out from the Department of Agriculture, to which a large number of replies was received. These questions and the replies have been tabulated as follows:

1. Are preservatives, other than the usual condimental preservatives, namely, sugar, salt, alcohol, vinegar, spices and wood smoke, injurious to health?

Affirmative	218
Negative	33
Total	251

2. Does the introduction of any of the preservatives which you deem injurious to health render the foods injurious to health?

Affirmative	222
Negative	29
Total	251

3. If a substance added to food is injurious to health, does it become so when a certain quantity is present only, or is it so in any quantity whatever?

Affirmative	169
Negative	79
Total	248

4. If a substance is injurious to health, is there any special limit to the quantity which may be used which may be fixed by regulation or by law?

Affirmative	68
Negative	183
Total	251

5. If foods can be perfectly preserved without the addition of chemical preservatives, is their addition ever advisable?

Affirmative	12
Negative	247
Total	259

It can be readily seen from this tabulation that the opinions expressed point overwhelmingly to the fact that preservatives

as a class are injurious to health, and hence their use is, under the act, inhibited.

Other data are also given showing that the very commonly expressed opinion among manufacturers that chemical preservatives are a necessity to the trade is recognized. The relation of this investigation to the public health is patent. It is not claimed that chemical preservatives in any case are food products. If they take any part in metabolism, their influence is to disturb the normal processes unfavorably. They place upon the excretory organs an additional burden. Benzoic acid or benzoate of soda, the preservative specifically mentioned, is changed in the metabolic process principally into hippuric acid, thus adding an additional destructive product to the fluids of the body, the elimination of which is at once required to avoid the poisonous effects which it otherwise would produce. The trend of the argument is to show, therefore, that chemical preservatives have no place in food products.

THE OPHTHALMO-TUBERCULIN TEST:

A New Diagnostic Method in Tuberculosis *

By EDWARD R. BALDWIN, M.D.
Saranac Lake, N.Y.

As a result of v. Pirquet's studies on secondary or re-vaccination, a new test for tuberculosis was introduced by him into the children's hospitals of Vienna and Berlin. The observation that the primary vaccination was followed by the slowly-developing pustule of vaccinia, whereas the secondary, — while the immunity existed, — pursued a rapid course with hyperemia, swelling and the formation of a transient papule without the actual infection of vaccinia, led v. Pirquet to see the analogy in these phenomena to those of other diseases. The classic experiments of Koch, which led to the discovery of tuberculin, are readily recalled in this connection. He noted that reinfection of tuberculous guinea pigs was not easily produced and the course was entirely different from the first. Marked local reaction and swelling occurred at the site of inoculation without the involvement of neighboring glands. This was accompanied by evidences of general reaction and other changes which led to the experiments with dead bacilli and ultimately the extract known as tuberculin for therapeutic and diagnostic use. v. Pirquet's experiments were made with scarifications of the skin as in vaccination, into which tuberculin (not tubercle bacilli) was rubbed. A hyperemia and swelling followed in tuberculous children which was absent in the non-tuberculous, and constitutional disturbance was generally absent in the tuberculous. In 360 tests it was found to be

* Read before the Laboratory Section, American Public Health Association, at Atlantic City, September 30, 1907.

a pretty reliable diagnostic criterion in children under two years of age. Unfortunately, older persons reacted more or less in all cases, and animal experiments were similarly unsatisfactory in the hands of Arloing, Vallée and Guerin.

On the basis of the cutaneous test the suggestion was made independently by Dr. Wolff-Eisner of Berlin, and Professor Calmette of Lille, France, that the conjunctiva might furnish a favorable field to exhibit the reaction without the necessity of scarification. The white background of the ocular conjunctiva indicates slight changes of hyperemia, owing to the rich supply of vessels and gives a quick response to irritants, hence if tuberculin susceptibility is present the eye would be expected to reveal it to advantage, and with greater delicacy.

In the preliminary tests made on hospital patients this was found to be true by Calmette and Letulle. To avoid the irritant action of glycerine and other substances such as beef salts contained in the old tuberculin they employed a precipitated, dry tuberculin redissolved in water. The precipitate was obtained by adding 95 per cent alcohol to the old tuberculin which, when washed and dried, was used in 1 per cent solution, one drop being instilled into the eye. A reaction occurred in all tuberculous patients save those in the last stages, and in none who were suffering from other diseases. About four hundred cases have been reported thus far, including all ages and diseases. Professor Comby of Paris reports 132 children tested with 0.5 per cent solution. Of 62 who reacted, post-mortem examination confirmed the diagnosis of latent tuberculosis in 6. Of the 70 who did not react, absence of tuberculosis was claimed for 4 who came to autopsy.

THE REACTION. After the instillation of tuberculin no perceptible irritation follows in the majority of healthy persons unless the strength of the solution is greater than that

above mentioned. In individuals who are tuberculous at the time, or those who have recovered from a previous attack but still retain susceptibility, a scratchy feeling with secretion and redness of the palpebral conjunctiva and inner canthus develops in from 3 to 24 hours, and, in a few instances, as late as 48 hours. Exudation of leukocytes which gather into fibrinous or purulent collections occurs in moderately severe reactions, while in the most severe ones, edema of the lids, deep congestion of both palpebral and ocular conjunctiva develops, with considerable discomfort, though severe pain is absent. After reaching its height, in from 12 to 24 hours, the reaction gradually subsides in the majority of cases in 3 days; severe reactions may exhibit swelling 4 or 5 days and redness for a week. Coryza of the nasal passage on the tested side has been noted in a few cases. No harm has yet resulted from the test and no change in the interior structures of the eye has been noted in my tests. No fever or local reaction in the tuberculous tissues has accompanied the eye reaction thus far.*

ITS EXPLANATION. The explanation of the specificity of this reaction is closely connected with the phenomena of anaphylaxis, which have been studied with such fruitful results by Rosenau and Anderson, Gay and others. When the cells of an animal have been subjected to the influence of foreign proteids, whether in the form of bacterial substances produced in spontaneous disease or purposely injected, there occurs a profound change in the functions and behavior of the cells to a subsequent exposure to the same substances; the cells become sensitized and indicate this by a series of reactive phenomena, which range all the way from a local hyperemia and leukocytosis to grave multiple extravasations

* More recently several cases of phlyctenular conjunctivitis and keratitis, especially in scrofulous children, have been reported by various authors which should argue caution in its use.

of blood and fatty changes with collapse and death. The response thus created is a manifestation of resistance which is not equivalent to immunity yet is a phase of it, which may be judged valuable in warding off harm when exposure to natural external infection is encountered.

In tuberculosis the extreme sensitiveness to tuberculin is well known; it is indicated by the rush of leukocytes and exudation to the site of injection as well as to the periphery of the tubercles. Hence, individuals who have received enough infection to acquire a specific sensitiveness will exhibit the reaction in the conjunctiva to a greater or less degree.

The amount and duration of the sensitiveness is dependent on unknown factors, but we know that wide differences occur in different individuals, with disease of apparently equal extent. Reactive power is indeed more prominent in the earlier or latent stages, while in acute, disseminated types and the advanced stages it is often weak or absent.

The possibility of a non-specific susceptibility in the absence of the infection must be considered in some individuals who manifest idiosyncrasies in skin eruptions and rashes.

CONTRA-INDICATIONS. Any existing disease of the eye or lids, conjunctivitis, blepharitis, trachoma, keratitis and iritis should be deemed sufficient reason to contra-indicate the test. Eye strain from errors of refraction need not prevent its use so far as present experience is an indication. The tested eye should be kept from external irritation, such as rubbing, wind, dust or smoke.

METHOD AS APPLIED BY THE WRITER. A quantity of concentrated old tuberculin is poured into two volumes of 95 per cent alcohol and the precipitate allowed to settle. It is then filtered and the sediment washed with 70 per cent alcohol until the filtrate is clear. The sediment

is pressed between folds of filter paper, scraped off and dried over H_2SO_4 in vacuo. The lumps are powdered under a hood to avoid inhaling the dust and quantities of one per cent by weight are dissolved in normal saline solution, boiled, and any precipitate filtered. A portion is diluted one-half or two-thirds according to the reactive strength as ascertained on tuberculous patients, this being the only means of standardization.* The solutions are finally sealed into glass tubes, each containing a few drops, and boiled for ten minutes to insure sterility.† Any further precipitate is easily centrifugalized to one end before opening the tubes by breaking them at a file mark in a clean cloth; crumbs of glass are to be avoided in this procedure. The writer made use of two solutions which contained .33 per cent (No. 1) and .5 per cent (No. 2) respectively of the tuberculin, which in the preparation used seemed to be too strong in 1 per cent solutions. When No. 1 failed to produce a reaction, No. 2 was instilled into the other eye after twenty-four or forty-eight hours, thus avoiding unnecessarily severe reactions, and giving greater delicacy to the diagnostic test.

It appeared advantageous also to use a definitely measured drop, and for this purpose a calibrated eye dropper fitted with a Wright's "throttle" tube was adopted, which was graduated to .025 c.c. By holding the eyelid down until the drop spreads around the sac this amount is easily retained without overflowing on the cheek. It should not be instilled cold, and the dropper should be cleansed with alcohol and salt solution before use, to avoid accidental contamination. The same eye should not be tested twice in succession, as there is some evidence to show that it becomes sensitized by the first test; this, however, requires further study.

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* The advantage of making up a large stock for continuous use is obvious, as it does not deteriorate readily.

† Small capillary tubes like those employed for vaccine might be adapted to contain enough for one test.

The following schema was adopted for the purpose of recording reactions and comparing results:

SCHEMA FOR RECORDING REACTIONS

NEGATIVE: No difference in color when lower eyelids are pulled down and compared.

DOUBTFUL: Slight difference with redness of caruncle.

X Distinct palpebral redness with secretion.

XX Ocular and palpebral redness with secretion well marked.

XXX Deep injection of entire conjunctiva with edema of lids, photophobia and secretion.

CLINICAL OBSERVATIONS. The observations thus far made by the writer and his colleagues are here simply summarized, as the publication of a detailed study is contemplated later.

One hundred and thirty-seven persons have been tested, five of whom were controlled by the subcutaneous test. Of 45 tuberculous patients in all stages, 42 reacted positively, 1 was doubtful, and 1 advanced miliary and 1 tuberculin-treated were negative. Of 9 healed tuberculous persons (1 to 17 years healed), 8 reacted and 1 was doubtful. Of 26 individuals suspected because of history, symptoms or physical signs, 8 reacted positively, 4 doubtful and 14 negative. Of 57 supposedly healthy persons, 16 reacted, 8 of whom gave a family history of tuberculosis, 6 of close contact with tuberculous persons, and only 2 in which no such history was obtained. Among the 41 who did not react 20 were farmers and guides living in the open air; most of the others were in contact with tuberculous patients. In general the results correspond to those obtained with the subcutaneous test. Of the 6 who were thus tested all were negative to both tests save one who was known to have lues and

reacted to .005 c.c. tuberculin. The figures with supposedly healthy people are not different from those obtained with the subcutaneous test, but idiosyncrasies must possibly be considered as playing some part in causing reactions until further experience and post-mortem observations shall establish the limits of specificity. Should it prove to be only one method of confirming the diagnosis of a suspected tuberculosis, and even then with but three out of four chances of accuracy, it will approach in value the subcutaneous test or the Widal test for typhoid.

Considering that individuals with clinically-healed tuberculosis may give a reaction for an indefinite time, the test cannot at present be taken as a criterion either of healing or of the presence of active tuberculosis when no symptoms of this exist. Considerable care is therefore required in interpreting a positive reaction and, on the other hand, a negative result cannot now be asserted to exclude the presence of the disease.

In the general adoption of such simple methods great judgment is needed to avoid unnecessary alarm, especially to members of tuberculous families who have no symptoms of the disease, yet who may be found to react readily to this test. While thus capable of sounding a warning note to those who need it, sensitive persons might overestimate the importance of a slight infection or a long latent disease, which has little chance of becoming active.

The Massachusetts Association of Boards of Health

JANUARY QUARTERLY MEETING
Boston, Mass.

The quarterly (and annual) meeting of the Massachusetts Association of Boards of Health was held at the Brunswick Hotel, Boston, Thursday, January 30, 1908. The President Dr. H. P. Walcott, presiding.

THE PRESIDENT. The first paper will not be presented by Dr. Thorndike, who is obliged to go South on account of his health, but Dr. Wilson has kindly offered to present the paper which Dr. Thorndike would have presented had he been here.

A FEW REMARKS ON THE PREVALENCE OF VENEREAL DISEASE

By LOUIS T. WILSON, M.D.
Boston

The following points will be briefly considered in this short paper.

1. The frequency of venereal disease.

2. The ignorance of the public as regards the seriousness of venereal disease.

3. The chance of innocent infection.

4. The bearing of venereal disease on the general health of the infected individual both as to present condition and to the future and its relation to marriage and heredity.

Venereal disease is the most common of all adult diseases and none is more insidious or far-reaching in its after effects. Considered as a social danger, it seems to be on the increase in contrast to a number of diseases where progress has effected an undoubted decrease.

It is, of course, impossible to determine the actual number of persons suffering from venereal disease, but it must be very large. The lowest estimates in recent literature state that at least seventy-five per cent of the male inhabitants of our cities have gonorrhœa at some time in their life. Morrow remarked in 1901 that there were over two hundred thousand people infected with venereal disease walking the streets of New York City. French statistics state that from five per cent to twenty per cent of the male inhabitants of the larger European cities are infected with syphilis. The Surgeon General of the United States Navy reports that in the year 1905 gonorrhœa stood second and syphilis fifth as a cause for

hospital admission, the order being tonsilitis, gonorrhœa, wounds, bronchial affections, syphilis. He comments on venereal disease as follows:

"Venereal disease caused a decided loss of efficiency with 6,154 admissions, which is an increase of 631 over the admissions for 1904. The admissions for this disease show only approximately the prevalence of venereal infection in the Navy, owing to the fact that a large number of cases of gonorrhœa are not admitted to the sick list and hence are not included in the statistical reports. Venereal disease gives a total of 127,286 sick days which is equal to the entire loss of the services of 348 men for the year."

The Surgeon General of the United States Army in his report for the same year says: "Venereal diseases were again by far the most important affecting the efficiency of the army during the year. These diseases were first with admissions to hospital, discharge, and non-effectiveness, causing nineteen per cent of all admissions, fifteen per cent of all discharges, and thirty per cent of all non-effectiveness for disease. There were constantly on sick report for this class of disease 710 men, equal to the loss for the entire year of the service of about eleven full companies of infantry. The increase noted in all the rates, except that for discharge, for venereal disease indicates a most unsatisfactory condition." "The admission rates in the American Army were higher than in any other army in the following: alcoholism, dysentery, gonorrhœa and syphilis. (British Army excepted in syphilis.)"

The public does not realize that gonorrhœa is not only a local disease but in many instances a systemic disease attacking almost every structure of the body, the gonococci being carried through the lymphatics and deposited in the various serous membranes. The duration of gonorrhœa depends on the longevity of the gonococcus, and this organism may live for years after its introduction into the body. The

anatomical structure of the genito-urinary system affords many hiding places. During the course of a gonorrhœa, the gonococci may penetrate into the many crypts and glands of the urethra, setting up an inflammation. They may continue to propagate within these cavities for months after inflammation has ceased on the free surface of the urethra, only to escape at some future time with the resulting infection of wife or mistress. Posterior infection which occurs in eighty per cent of all cases, generally results in an infection of the prostate, seminal vesicles or testicles. Such an infection is the chief cause of chronic gonorrhœa. Its cure even by the best treatment is a long, slow process, and in many cases it is impossible to effect a cure. Most men regard gonorrhœa as a simple affair to be treated only so long as the disease inconveniences them. When the discharge has ceased they regard themselves as cured. This belief is fostered by the large number of advertising quacks who guarantee to cure all venereal disease in a marvelously quick time; by druggists and manufacturing chemists, who sell a sure cure, and also, I am sorry to say, by physicians who from an unwarrantable ignorance of the symptoms of an uncured gonorrhœa or from a careless examination, discharge their patients as cured. A large number of chronic gonorrhœas cause the patient little or no inconvenience. The morning drop or mild gleet is not regarded as infectious and in consequence the patient resumes his usual life, ignorant or careless of the fact that he is carrying in his system latent gonococci waiting for a chance to be planted in a fresh soil, there to start a new infection and add one more to the already long list of cases. Morrow reports a case of contagion four years after infection and one after six years.

Syphilis is looked upon by the public as a more serious disease than gonorrhœa and pursuing a longer course. This is due to the duration of primary and secondary symptoms, but attention is often paid to the disease only so long as

the primary lesion is observable or disfiguring complications are present. They know little about the fact that the blood is infectious for years, and it is hard to convince them that treatment is necessary for a long time after all symptoms have gone.

As a result of the ignorance of the serious nature of venereal disease, the chance of innocent infection is great. Gonorrhœal infection requires a transference of some of the discharge; almost always by sexual intercourse, yet occasionally by use of contaminated towels, syringes, bed linen, bath tubs, and in the case of children from occupying the same bed with an infected member of the family. Gonorrhœal vaginitis is not uncommon among little children.

Sara Welt-Kakels, in her clinic at Mount Sinai Hospital, New York, from 1893 to 1903, reports that 1.6 per cent of all cases treated had vulvo-vaginitis mostly of gonorrhœal origin. In 1890 there occured in Posen, Germany, an epidemic of vulvo-vaginitis in which 236 school-girls were infected. They had all used the same bathhouse and owing to limited accommodations several children bathed in the same tub. The danger of contagion, even in hospitals where the utmost vigilance is observed, is well shown by Emmet Holt. In 1902 at the opening of the Babies' Hospital, New York, a child suffering from gonorrhœal vaginitis was inadvertently admitted. From this child there developed in the wards eleven new cases.

Syphilis has a much larger field of contagion. Not only can it be conveyed by transference of discharge from the primary sore and other manifold lesions in the body, but also by the blood of the infected person. Besides sexual intercourse it may be conveyed by means of spoons, knives, forks, cups, pipes, towels, kissing, etc.

The bearing of venereal disease on the general health of the affected individual, both as to present condition and to the future and its relation to marriage and heredity, is little

thought of. Gonorrhœal infection of the prostate and vesicles may be followed by a long train of nervous symptoms. Epididymitis when double results in sterility. Morton states that ninety per cent of sterility in the male is due to gonorrhœa. Luer and Asher calculated in cases where both parties were examined that the husband contributed 59.1 per cent to the sterile condition. Gonorrhœal arthritis is a common sequela. Cole says that in 1905 gonorrhœal arthritis was more frequent in the wards of the Johns Hopkins Hospital than acute articular rheumatism and almost as common as tubercular arthritis.

Syphilis causes disfiguring lesions of the skin, loss of hair, disease of almost all parts of the body, and must be considered in the destructive ataxias, paralyses, nerve degenerations, bone necroses, insanity and imbecility. For the year 1906 venereal disease headed the list as a cause for rejection to the United States Navy, being 100.19 per 1,000.

When we come to consider the relation of venereal disease to married life and the woman, we realize even more the terrible effects. With married life it is almost inevitable that where one of the parties is infected the other becomes infected also. Fully eighty-five per cent of married women who contract gonorrhœa are infected innocently by their husbands. The gravity of gonococcal infection in woman is much more serious than in man owing to the anatomical differences. The infection is not confined to the urethra but extends. The disease at first is insidious; the latent gonococci which may have lost their virulence in the man are stirred into renewed activity by a menstrual period and ascend into the uterus, tubes, ovaries, and even the peritoneum. All this takes time and only when the woman is compelled by a condition of invalidism does she consult a physician, bears it in silence or treats herself with one of the numerous remedies so widely advertised to cure all female complaints.

S. T. Johnson says: "The effects of gonorrhœa in the female generative organs have been so destructive that no successful contradition is feared when the belief is expressed that no disease in modern times has caused so much indirect mortality, mutilations and suffering, both mental and physical, as gonorrhœa." Gynecologists estimate that from sixty to seventy-five per cent of their operations are made necessary through gonorrhœa. Morrow says that seventy per cent of all the women treated under his care at the New York hospital were respectable married women, who had been infected by their husbands. Hummeiston states that ninety per cent of his operations are due to gonorrhœa. Price states that ninety-five per cent of 1,000 abdominal operations were due to the same cause.

The influence of gonorrhœa as a factor in depopulation is seen when we consider the great number of pelvic operations necessary to restore health and save lives of these women. It is again seen as a cause of abortion; Sawyer claiming that as many abortions are due to gonorrhœa as to syphilis, and also in the "one child marriage" where infection of the tubes and ovaries results from the favorable condition found at childbirth with resulting sterility.

Fortunately gonorrhœa is not inherited, but as concerns the child we must consider ophthalmia caused by gonococcœal infection. F. Parke Lewis states that carefully tabulated statistics demonstrate that at least one-tenth of all the blindness is due to gonorrhœal ophthalmia.

Thus we see that the effects of gonorrhœa are definite and directly attributable to this disease alone. When we consider syphilis we find it more complex, and its effects difficult to ascertain. The local and systemic effects are the same in both sexes. The primary lesion, the various secondary symptoms, and the blood infection lasting for years, together with the many vague tertiary sequelæ. In the matter of heredity syphilis leaves the parent neither sterile or impotent,

but the child it may kill or leave it liable to destruction from other agencies. The disease may be transmitted to the fetus and cause three results:

1. It may destroy it and cause its abortion.
2. It may kill it shortly before or after birth.
3. It may allow the child to be born alive but bearing evidence of the disease, which may develop at some later time.

We must also consider the danger to the child from parents infected shortly after its birth. Fournier's statistics show that the mortality from heredity syphilis in hospital practice is eighty-five per cent, that is, the children dying either before or shortly after birth.

We have thus briefly considered the prevalence and results of venereal disease. That it is on the increase rather than on the decrease there is no doubt, and until the public is taught the fact that it is serious, and what is necessary for a cure, it will continue so. The education of the public is not the province of this paper, but the writer cannot refrain from saying one thing:

That some steps should be taken by the Boards of Health to prevent the public advertising of quacks, who guarantee a swift and sure cure, and the prescribing and sale by druggists of medicines also guaranteed, — a law similar to that forbidding the sale of morphine and cocaine.

THE PRESIDENT. The next paper upon your program is by Dr. Post upon "What should be the attitude of Boards of Health toward Venereal Diseases." I have the pleasure of introducing to you Dr. Post.

WHAT SHOULD BE THE ATTITUDE OF BOARDS OF HEALTH TOWARD VENEREAL DISEASES

By DR. ABNER POST
Boston, Mass.

DR. POST. The attitude of the community towards venereal diseases is very largely one of apathy and indifference. Such indifference is chiefly due to an ill-defined idea that these diseases are the punishment set by the Almighty upon unchastity; that they attack only evil doers, and have no terrors for the chaste; that their control means a traffic in vice and its encouragement by making it safer. This ignorance and these erroneous ideas prevail very largely in our own profession.

The question proposed for discussion today should be limited a little. Instead of the question, "What attitude should Boards of Health take on venereal disease?" let us ask, "What is the present duty of Boards of Health towards venereal disease under existing circumstances in this community?"

It hardly seems necessary to plead for *some* action. For years we have cultivated these diseases. We send our soldiers and sailors to the Orient to bring them home. We import them with our immigrants. We invite immigrants from countries where syphilis is most abundant. We are put on the defensive when a supposed case of smallpox or leprosy turns out to be syphilis. Our almshouses are full of cases illustrating the evil effects of venereal diseases, but not a hospital exists to treat cases in their earlier stages, when they are most dangerous to the community.

The paper just read has shown how these diseases have flourished under this system of cultivation. Surely we must all agree that the time has come when it is the duty of our Boards of Health to do all in their power to stem this growing evil. There may not be the same unanimity in regard to the means to be used.

The first duty is to gain the coöperation of the public. Nothing which outrages public opinion can succeed in a democratic country. When public opinion demands anything it is easy to obtain the means. The public should be taught that it is necessary to protect the innocent. If these diseases attacked only the guilty they might be disregarded.

Something would be gained if these so-called venereal diseases could be regarded simply as contagious diseases, dangerous to the community, rather than as evidence of evil-doing on the part of their bearer. Their names should be included in lists of contagious diseases dangerous to the community of which Boards of Health may take cognizance.

I believe it would be best for us in New England to absolutely and definitely surrender the idea (for the present, certainly) of license and periodical examination of public women. This expression of belief is not intended to express any opinion, *pro or con*, as to the value of this method as employed in many foreign cities, but simply a belief that it is not adapted to New England.

The success of such a system is more than doubtful. It is regarded as illogical by many to hold one sex responsible.

The attempt to pass a resolution in its favor nearly disintegrated the International Congress at Brussels in 1898 for the consideration of venereal diseases.

Similar regulation when limited to garrison towns has proved impossible in England, where public opinion closely resembles our own.

It is contrary to the moral sense of the community. It would be sure in New England to arouse a storm of opposi-

tion which would make its execution impossible. A proposition to establish such a system in our community would unite in opposition all the descendants of the Puritans, the advocates of equal rights for women, and practically all the clergy. It would be regarded with lukewarmness by a large part of the medical profession and with absolute hostility by an active minority.

On the contrary, if it were definitely known that such regulation formed no part of the present scheme, it would be much easier to unite the public in a crusade not very different from that now waged against tuberculosis.

It is also necessary to interest and instruct the medical profession.

When one thinks of the number of medical men who are themselves inoculated with syphilis when operating upon cases which they considered something else, it is evident that there is need of education before we can be trustworthy guides of the people.

It is not the evident cases that are dangerous so much as the poorly marked and the obscure.

Education of the medical profession was one of the particular recommendations of the International Congress already mentioned.

If our Boards of Registration in Medicine could be induced to add to their examination for license to practise, a paper on contagious diseases, including gonorrhœa and syphilis, it would certainly stimulate their study and oblige medical schools to provide for their instruction.

But what has been said is only preliminary to what follows. The way to limit these diseases is to treat and, so far as may be, cure those afflicted with them, and that means the maintenance of proper hospital accommodation.

At present, individuals afflicted with syphilis and gonorrhœa who are unwilling to accept almshouse relief are obliged to continue their labors or starve, no matter how intimate

their association with other people. Bakers, cooks, barbers, waiters, children's nurses, distributors of milk, barkeepers and prostitutes are all alike obliged to continue at work. If a cook is discharged from your employment because you discover that she is syphilitic she can only seek work in some other kitchen where her disease is not known and not provided against.

A very large proportion of these persons would willingly accept hospital care during their dangerous period if it were available.

It is necessary to change the attitude of the public and especially of hospital trustees, that they may recognize the necessity of providing hospital accommodation for gonorrhœa and syphilis with equal facility as for other diseases.

We should go further and communities should be obliged, as in Italy, to provide hospitals or wards for such cases, and these hospitals should be so administered as not only to care for the sick but to provide for the instruction of medical students and practitioners.

We are sadly in need of opportunities for instruction. As a profession we fail in our duty to the public. We do not recognize syphilis in its early stages nor gonorrhœa in its later. It is not our fault so much as our lack of proper instruction, and that fails very largely for want of clinical material which can be properly utilized.

If any one of the hospitals already incorporated but not erected would provide wards for syphilis and gonorrhœa, it would do more for the general health of the community than by the provision of twice the number of beds for general medical and surgical purposes.

Hospitals must be instituted preliminary to any other procedure. Repressive measures are out of place when no means are provided for hospital care.

But these hospital accommodations provided, it will then be in order to proceed against those who do not voluntarily

avail themselves of the opportunities offered. It is not possible, nor is it necessary, to seclude every individual afflicted with these diseases, but there are certain individuals who from ignorance, carelessness or wilfulness are especially a menace to the community. There are others whose disease takes on so virulent a form that they are particularly dangerous to their environment.

Such persons are found occasionally at out-patient clinics, among applicants for charity and in the police court.

If Boards of Health were really in earnest in seeking out and secluding such cases, out-patient physicians, district visitors, charity bureaus and the police would render the same service in detecting and reporting them that they now exercise in cases of smallpox.

For these individuals other hospitals should be provided, apart from the voluntary hospitals already mentioned. They should be places where such patients may be guarded against escape; for these individuals are entirely apart from the more intelligent and careful class who would voluntarily seek relief. Into the first hospitals should be invited the unfortunate. In the second the depraved should be confined.

There stands upon the statute books (Chapter 75, Section 48) the following statute:

> An inmate of a public charitable institution or a prisoner in a penal institution who is afflicted with syphilis shall be forthwith placed under medical treatment and, if in the opinion of the attending physician, it is necessary, he shall be isolated until danger of contagion has passed or the physician determines that his isolation is unnecessary. If at the expiration of his sentence, he is afflicted with syphilis in its contagious or infectious symptoms, or, if in the opinion of the attending physician of the institution or of such physician as the authorities thereof may consult, his discharge would be dangerous to public health, he shall be placed under

> medical treatment and cared for in the institution where he has been confined until, in the opinion of the attending physician, such symptoms have disappeared and his discharge will not endanger the public health. The expense of his support, not exceeding three dollars and fifty cents a week, shall be paid by the place in which he has a settlement, after notice of the expiration of his sentence and of his condition to the overseers of the poor thereof, or if he is a State pauper, to the State Board of Charity.

This provision, as a part of a systematic attempt to limit the ravages of syphilis, would be a most valuable instrument. It would secure a certain number of the most reckless individuals, and the provision whereby the expense is charged to the towns where the detained syphilitic has a settlement would serve to emphasize the necessity of hospitals in such towns.

If our cities and towns were isolated, these measures would meet with a very considerable degree of success, but unfortunately we import a large amount of disease and it would become the duty of the inspectors of immigrants to use all possible care that the obvious cases at least are detained.

Were the movement against venereal disease at all general, the surgeons of the army, navy and marine hospital corps would be found to be most valuable coadjutors in the work.

A few years of such effort would accomplish a great change in the prevalence of these diseases. With the increase in our knowledge of their bacteria, we have reason to hope that some serum or vaccine, not yet possible, will aid repressive measures. But then, as now in venereal as in other contagious diseases, eternal vigilance will be the price of safety.

THE PRESIDENT. The Association is fortunate in having two other guests who can speak to us instructively and authoritatively upon this important subject. I am going to ask your attention to Dr. Malcolm Storer of Boston.

DR. STORER. Dr. Durgin has asked me, at very short notice, to contribute what little I can to this discussion, not because I have in any way been identified with the campaign against Venereal Disease, but because, I suppose, he knows that I take great interest in the crusade, and have had opportunities of seeing a large amount of disease in women, especially gonorrhœa, in spite of the fact that I have rather discouraged such cases from attending my clinics, feeling that their presence was more or less of an active danger to the other more strictly gynecological cases. With a little encouragment the average gynecological clinic would become almost a purely venereal one. I remember, however, two cases at my clinics that were undoubtedly infected by dirty hands or instruments, in spite of the ordinary care, and for that reason I do not welcome venereal cases and should be glad to see at our various Out-Patient Departments rooms devoted exclusively to venereal disease to which the greater part of such cases could be referred.

Leaving aside the mooted question of the possibility of ever really curing gonorrhœa in the female, fifteen years' experience in out-patient clinics has convinced me of what little hope there is of curing the disease in prostitutes under our present system, owing to their intermittent attendance and lack of thoroughness in carrying out directions. It is the very great exception that I can follow a case in a prostitute until I can tell her that she is apparently cured. Generally when the urethritis has subsided and the vaginal discharge has become inconspicuous the case disappears from observation, and I suppose most of the girls are engaged in actively spreading the disease as soon as coitus is no longer painful, in spite of the clear explanation of the probable consequences to their victims that is generally given them, and it seems to me that in default of better methods of treating these cases this state of affairs must of necessity continue. I cannot but feel that reform must be brought about along

the lines of education and more strict supervision of houses of ill-fame. More education is needed in the whole subject of sexual hygiene and especially should it be emphasized what a grave matter sexual diseases are apt to be when improperly or half-heartedly treated. The average boy is now having his eyes opened to a certain extent to the probable consequences of sexual transgression, thanks to a better appreciation on the part of parents of the great wisdom of explaining such things to him. I could, however, wish that the system of having talks on sexual hygiene in our upper schools could be much more widely extended. The great trouble is that the girls, as a rule, get no instruction other than that which they may pick up from their more sophisticated sisters, and then knowledge generally comes only after the damage is done. I believe that at present there are no talks on sexual hygiene given our public school girls and probably a proposition that there should be would be met with much hysterical clamor at the wickedness of putting such ideas into girls' heads. I feel, however, that if the step were once taken its wisdom would not be questioned after a very short time. The few parents who might object to their daughters knowing that they have insides could simply keep them away from the one or two lectures needed. A plain, simple, commonsense talk, taking these matters out from the mystery in which parents are generally content to let them rest, would, I think, plant seed in the mind of many a girl that would not be forgotten at the time of temptation. Experience has shown that morality alone will not always keep girls straight — might it not be worth while to try what a little knowledge might accomplish? Sentimental objections about putting such ideas into girls' heads have not as much weight as say fifty years ago. Most girls of fifteen or sixteen nowadays think they know quite as much as their mothers, — had not that wisdom better be imparted to them by some competent person rather than be picked up haphazard? The idea of

personal cleanliness appeals to most girls of whatever station, and very few of them, until they have found out by bitter experience, have any idea of the loathsome nature of some of the forms of sexual disease — in fact, hardly appreciate that there is anything to be feared except maternity.

Much could be done along the line of the education of already infected patients by the distribution to suitable cases, as they present themselves at our clinics, of leaflets describing the dangers of gonorrhœa, and the necessity of as thorough a cure as possible, something after the manner of Dr. Follen Cabot in New York, and especially insisting on the importance of all men who have had gonorrhœa presenting themselves for examination before they get married, no matter how thoroughly they think they have been cured. An analysis of the last 340 cases of gonorrhœa in women presenting themselves at the Boston Dispensary, has some bearing upon this point. I have chosen the Dispensary rather than the Carney or St. Elizabeth's hospitals, as prostitutes rather shun the neighborhood of the Sisters of Charity, and either of those hospitals would show a disproportionately large number of married women. I have excluded the large number of cases occurring in children under twelve as practically all of them are innocent. Of these 340 cases, 130 were single, and 210 probably married. Of the 140 single cases only fourteen were over thirty, sixty-two per cent of them being between seventeen and twenty-two. In the married women the range of age is much greater, increasing regularly from eighteen to twenty-eight, remaining about stationary till thirty-four, and then decreasing gradually, but in spite of this nearly a quarter were over 40 and several over 60, the oldest being sixty-eight. Of course it is impossible to say with any accuracy how long the disease had been going on when first seen in these cases, certainly for many years in many. I remember one woman of twenty-seven who had had an evident gonorrhœa since she was three years old,

frequently confirmed by the microscope in recent years, but the striking fact in these 210 married women is that sixty-eight had evidently been infected by their husbands soon after marriage. Of course some of the older women might possibly have acquired the disease from other sources, but the constant story in these young married women, in the cases where the wife suspects the trouble, is that the husband had a discharge some years previously but thought that he had been cured, and in most cases, I think, honestly.

I have said that such leaflets might be well distributed in suitable cases, for I cannot but feel that a vast amount of harm would be done if they were scattered broadcast to married and single, as some enthusiasts would do. It would be brutal as well as useless to tell many married women that they have gonorrhœa. I have seen many a married woman through an attack of gonorrhœa without her ever suspecting that her trouble had been given her by her husband, where his disease probably antedated his marriage by years, but where nothing would have convinced the woman that her husband had not been unfaithful had she been told that she had gonorrhœa, to say nothing of her useless grief at being inflicted with a disease that most women regard as disgusting. Of course in these cases I try to get the husband under treatment as well as the wife. I was rather struck with the large proportion of married women in these dispensary cases, although I rather strained things and entered as single a number of girls who said they were married, but whom I felt would have had great difficulty in producing the alleged husband.

Such leaflets would undoubtedly do much good in suitable cases, but I must say that I rather despair of very much being accomplished by education, unless it be the education of our public to the recognition of the fact that no matter how much they shut their eyes we have the Social Evil with us, and always will have it, and that properly and strictly

supervised open houses, objectionable as they are from many points of view, are a vastly lesser evil to the community than the prevalent methods of allowing such places to exist only as breakers of the law, with the health of their inmates dependent wholly on the caprice of the mistress. In advocating this, I recognize that in some instances the system of licensing houses has been a dismal failure. I wonder how often this has been owing to faults in administration. I recognize too, the argument that a brothel that is known to be practically safe may attract men upon whom fear might otherwise possibly be a deterring influence, but surely no one would regret the frequenting of public houses by many unmarried men if the possibility of frequenting such houses in comparative safety should in any degree lessen the temptation to seduce an innocent girl. Nor do I attach very much weight to the argument that New England prudery cannot be brought to recognize the existence of such things in our civilization. Interest in these matters and a more proper appreciation of their importance has been increasing vastly in the last ten years, and I have great hopes for the future. I do not feel very much drawn to the scheme that has been proposed of reporting all venereal cases to some central bureau and having them followed up by a social worker. I think that a very short experience of this would drive the girls even more than now to quacks, for there they would at least find secrecy. Much as I dislike extending the sphere of paternal government I fear that the whole question of the Social Evil will never be properly handled while attempts to control it are in private hands. Its management seems to me entirely within the province of our Boards of Health, and for myself I feel convinced that control will be most effective when prostitutes are segregated as much as possible, in houses that are licensed and frequently inspected, and where it shall be understood that the license shall be promptly revoked and the mistress and owner severely punished as

soon as it is proved that a single inmate has been practising her profession without a clean bill of health. I recognize the difficulties of inaugurating such a scheme here as well as those of carrying it out in the proper way. It is not to be expected that it will be all clear sailing from the start and that no mistakes in conception and personnel shall be made — for instance, even after our city fathers have made up their minds to brave the wrath of their wives and authorize such a system, it would be no easy task to obtain the right men for inspectors, for they must be competent and entirely trustworthy machines, yet I am confident that it is along these lines, if any, that progress will be made. With such a system there would surely be much less clandestine prostitution, which I think most authorities regard as much more dangerous to the community than open houses whose success is to a certain extent dependent upon their reputation for safety.

THE CHAIRMAN. The Association will be glad to hear from Dr. Carson.

DR. CARSON. In 1891 the General Court of Massachusetts enacted a law that was intended to stop, as far as possible, the spread of syphilis by a class of people who, by their habits and manner of living, would be particularly likely to spread it. While the law seems plain enough, there seems to be a wide difference of opinion in interpreting it. One opinion, rendered by one of the most eminent legal officers in the State, was to the effect that all cases of syphilis in penal and public charitable institutions came under the jurisdiction of the Boards of Health of the city or town in which the institution was located, and that all cases should be discharged as soon as the outward manifestations of the disease had disappeared. Another opinion was the same except that it placed the responsibility of discharge on the

physician in charge rather than the Health Board. Still another declared that neither the Health Board, physician in charge or anyone else had any right to detain a syphilitic against his will. The opinion rendered by the law department of the city of Boston, states that the syphilitic patient shall be detained under treatment until such time as the physician in charge shall decide that the patient is not in a condition to communicate the disease. It is obvious that adherence to any of the first three opinions would manifestly defeat the object for which the law was enacted, and the only difficulty in following out the latter opinion would be to decide when was the patient in condition not likely to communicate the disease. That, of course, is a question that cannot be determined with any degree of certainty. The rule now in operation at the Deer Island Hospital is to detain in the hospital under treatment all cases of early syphilis until they have had a full year's treatment following the appearance of the secondaries, and have had no outward manifestation of the disease for a period of at least three months. This, of course, is not a perfect protection to the community from these cases, who by their habits and character are particularly a menace, but it does undoubtedly prevent a large number of cases, and when we consider that a fairly large percentage of this class of syphilitics later in life develop general paralysis and various diseases of the nervous and circulatory systems and drift into insane asylums and almshouses, it must be seen that considerable expense, both to the city and State, is thereby saved. During the past three years twenty-one syphilitics under sentence in the Deer Island Hospital have been detained under treatment after their sentence has expired, for periods varying from ten days to eight months. In establishing the rule that we have, that is, to discharge no patient who has not been under treatment for at least one year after the appearance of the secondaries and three months after the disappearance of

all symptoms, we feel that we have been doing the least that should be done.

What interpretation other institutions make of the law I do not know, but I do know that at the present time I have in the woman's ward two cases of syphilis that have been treated in other public institutions that come under the same law that applies to the House of Correction. Of these one was released after two months' treatment on her promise to mend her ways and take treatment outside, and the other was released without any reservation whatever after five months' treatment. Both are under sentence for night-walking and the chances are that they have sown the seed for a fairly good-sized crop of syphilitics. I have known of several similar cases, one in particular that of a girl who was treated in a public charitable institution for five months and then released to go to a small New Hampshire city where she succeeded in infecting at least six members of the community; how many more I do not know. What I think should be done, is to have a stated period of time, say at least a year, preferably eighteen months, inserted in the law rather than have it as it now stands, or else a definite opinion rendered that would be observed by all institutions.

THE PRESIDENT. The tremendous importance of this most serious of all the contagious diseases has been set before you, gentlemen. What have you got to say to it?

DR. H. L. CHASE. Mr. President, I have not had as much experience in the treatment of venereal disease as some of the other members of the Association, but the great importance of this question has been impressed on me ever since I entered college. Of course, there are certain times in men's lives when they see a great deal of this disease and certain other times when they see very little of it. I suppose some of us who live in the suburban districts or in the coun-

try, especially those who are not physicians, see very little of it, perhaps never hear of a particular case from one year's end to another where we live. All of us, however, who have lived in cities, all of us who have been in college or in any large manufacturing place, or in the army, have seen a great deal of this terrible curse of gonorrhœa and syphilis, and those of us who are in general practice, as I am, often see the effects of gonorrhœa in our female patients, in such cases as Dr. Storer has just referred to. It seems to me that the principal speakers here today agree perfectly, that while better facilities for treatment are needed, prevention is of most importance and is mainly a matter of education. The lack of proper education, and of both sexes, allows young people to blunder into this terrible thing unwittingly, and then they have got to have recourse to medical aid, which it is very hard to get; there are ever so many obstacles in the way of getting adequate treatment. Even if we establish the hospitals that Dr. Post has so wisely recommended, they will not go to the root of the trouble. Several years ago I went every day, for some time, to the "lock-hospital" in Prague, with Professor Pick, who had charge of the unfortunate patients there, and saw those poor girls locked up in there, for isolation and treatment. I remember well one poor girl, who I am sure was not more than twelve years old, who had serious gonorrhœal trouble; her case was something most pitiful. In spite of such provision, the supply of patients continued a constant one in Prague and elsewhere. If we have those hospitals here they will do a great deal of good, in a certain way, but in order to accomplish the best results we have got to go further back. We have got to take up the other measure which all agree is so essential, namely moral and hygienic instruction as to sexual functions. It cannot begin too early, it seems to me. Of course we must not give the whole truth to little children or even to older children, but there is a common-sense way to answer

the questions our children ask us about the baby, and there is also a wrong way. As they get older and ask more questions, they ask what their sexual organs are for, and there is a tactful and commonsense way to enlighten them. It is now beginning to be recognized, almost everywhere, that it is a proper and necessary subject for hygienic instruction.

When I was in college, Prof. William James gave a course of lectures on hygiene, and one lecture was devoted to hygiene of the sexual organs. That was the most interesting and important lecture he gave. The lecture-room was crowded to the doors, and he had to repeat it the next week in a much larger hall, and that was filled too. The medical visitor at Harvard now gives an excellent course of lectures every year on personal hygiene, including that of the sexual organs, and the students appreciate it.

I think it would be a great pity if we should go away from this meeting without taking some practical step in the work that this Society may be expected to do. Sometimes we appoint a small committee to investigate and later to recommend what steps, if any, this Association should take toward bringing about a much-needed reform. If it is in order, I move that a committee be appointed by the President to take up this matter and report to the Association at a subsequent meeting.

(This motion was duly seconded and passed.)

THE CHAIRMAN. This does not, however, I hope, close the discussion.

DR. DORMAN. Mr. President, I would like to ask for a little enlightenment on one point. I have been very much interested about gonorrhœa occurring in young children, especially in institutions. If that infection in that form is serious, it is certain that the managers of those institutions

have a very great problem before them, and I would like to know whether gonorrhœa when it occurs in young children is likely to have bad consequences, or whether they speedily recover from it. Do the girls, for instance, remain infected for a long period of time, or are they apt to? Do the boys remain infected? Are permanent organic changes in the urethra and genital organs of the female likely to result from this infection which I understand is rather sub-acute, which is so frequent in young children in institutions?

DR. STORER. I will, perhaps, let Dr. Wilson speak for the boys, I see none of those. In young girls it is a very, very obstinate infection. Some men claim that untreated it does as well as when treated, anyway it generally lasts at least a year. I can remember of several cases lasting two years, and in a certain number of cases trouble with the Fallopian tubes has resulted. I had a private case last summer of very distinct irritation of the tubes which, although now dormant, will in all probability give the girl trouble when she arrives at puberty that her physician will not be able to explain. A German surgeon has reported four or five cases of operation for pyosalpinx in children under five. A case of gonorrhœal vulvo-vaginitis is a very great danger to other children. I did not know of the epidemic in a Boston institution Dr. Wilson spoke of, but besides that epidemic in Posen that he spoke of a large number of small epidemics have been reported occurring in foundling asylums, undoubtedly due to dirty water and towels. I cannot remember more than one case in a small child in which the disease was due to placing the sexual organ against the child's genitals. A few cases have been due to handling the genitals with infected hands, but most of them were due to sleeping with an elder sister who had gonorrhœa, or using infected towels or sponges.

DR. WILSON. I think it is just as serious in the boys as in the girls. It is surprising how common it is among children, particularly in hospitals. In the Children's Hospital here in Boston I can remember, some years ago, twelve cases inside of six months in the wards, some of those coming on after admission so far as we knew, others must have been there before they came in. We had a very hard time stamping it out and finally had to insist upon a strict examination of every child applying for admission, and not admitting a child until the examination was proved negative. If I am not mistaken, that is still kept up. It was only last week that I saw a little boy about eight years old who contracted gonorrhœa somehow or other, undoubtedly innocently, four years ago. You can still find gonococci, and how much longer those bacteria are going to stay there I cannot say. What the final effect of infection in children is, we do not know. These bacteria have a way of getting into the seminal vesicles. Whether they prevent them from growing properly or not is a question, but there is no doubt that it is very serious. As far as institutions go it is exceedingly serious, because you will not only get your trouble in the wards, but you have also to satisfy the parents that the child who goes home with the discharge did not get it in the hospital.

DR. SWARTS. Mr. President, if as it has been stated to you this afternoon by the first speaker, and reiterated by the others, and as it has been reiterated in the medical literature for the past five or six years, there is so much blindness, so much suffering, so much mental depreciation, so many laporotomies in the female hospitals, to the extent of 40 or 50 per cent, — or as Dr. Valentine puts it, of all the cases of laporotomies in the hospitals, 60 or 70 per cent are due to the presence of gonococci in the Fallopian tubes, — if syphilis requires the maintenance in our various institutions of many

chronic incurables, adding to the expense of the State, it surely is within the province of the Boards of Health, which I presume are intended to conserve the public health, to take cognizance of them, to make an effort to suppress them. They are communicable and therefore preventable. That such an effort is being made has been shown already in the action of various societies of this kind. I might recall to your minds the fact that when the American Medical Association met in this city a few years ago, as Chairman of the section on Hygiene and Sanitation, I devoted a whole day to a symposium upon this very subject. Two years after that another symposium was held. Last year, at Atlantic City, the same subject was taken up again. At the conference of State and Provincial Boards of Health, which represents the executive officers of State Boards, some four years ago the same subject was taken up, and they agreed to take the matter up in a practical manner, such as has been suggested to you today, that practical manner being in the form of offering to supply to all State Boards of Health a circular which should be agreed upon as being a proper form, and which would indicate to a patient and to the physician the severity and dangers of these diseases. As I remember, I had orders for something like 80,000 of these circulars to be distributed, and we distributed them in some four or five different States. Among those States was Rhode Island, which I represent. The method was to supply each physician with a number of circulars, stating upon them the conditions which were liable to accrue under these different diseases.

(This circular was prepared by Dr. Henry S. Holton, Secretary of the State Board of Vermont, and appeals directly to the patient.)

Circular of Information

Adopted by the Conference of State and Provincial Boards of Health

Issued by the State Board of Health
of Rhode Island

We hand you this leaflet believing that you would not willingly communicate your disease to some innocent person.

Many fail to comprehend the exceedingly disastrous results that often follow these diseases. Many cases of blindness, complete disability, and not infrequently death results from them. Gonorrhœa is one of the most frequent causes of diseases peculiar to women. So serious a menace have these diseases become to the public health that the medical profession and sanitarians in all countries have become alarmed, and are advocating measures for their prevention.

Syphilis (or Pox) is especially a disease from which innocent persons may suffer, as it usually produces sores in the mouth or on the lips, hence may be conveyed by kissing, drinking from the same cup, or using anything which has been put to the lips or into the mouth of one affected by the disease.

These diseases are often communicated when the patient thinks he has recovered. Hence marriage contracted at this time of the disease results in much unhappiness, and often in the death of the wife. To protect yourself and others, we earnestly advise the following:

IN THE INTEREST OF PREVENTION OF YOUR DISEASE.

What to do and what not to do, to get well and to prevent giving your disease to any other person.

Follow strictly the advice of your doctor, use no other treatment.

Remember that it takes a long time to entirely recover.

Carefully wash your hands with soap and hot water whenever you handle the private parts.

Do not have intercourse and avoid all sexual excitement until your physician says you are completely cured. Be especially careful not to rub your eyes with your fingers.

Do not allow any person to use any cup, glass, spoon, fork, or anything that you have put in your mouth.

Do not kiss anyone or wipe the face of a child with a handkerchief you have used. Always use a separate towel. Burn all cloths or cotton soiled by discharges.

The question arises, what is the advantage of such a circular? It is this: after you have had a patient in your office, and after listening to your statement that he has a disease which to his mind is one of the most serious on earth, perhaps even to the extent of causing the patient to commit suicide for fear of the results of this disease, when he receives the admonition for precaution it all goes in one ear and out of the other, and in a state of alarm he goes out of the office, forgetting entirely the precautions which the physician has impressed upon him. If a circular of this kind is placed in the patient's hands he places it in his pocket unwittingly, and when he reaches home he may read it over once or twice and become impressed with the necessity of care. By the repetition of that condition by the physician from time to time to the same patient, much can be done in the care and prevention of the disease in that individual and his family. I might state also that the American Public Health Association has taken this subject up in the same way, and has advocated the dispensing of circulars in this way. Some of the members have even gone so far as to request that school teachers should be instructed in detail as to the conditions of these diseases. It is entirely a matter of education, and that education must come from the Boards of Health. You

cannot get the physicians to undertake it, they don't know how to go at it. In fact, none of us if he were not a health physician would attempt to give a lecture upon a subject which is tabooed by the public. The people must be educated at the beginning. Clergymen are of no assistance to us. The education which comes to the medical student in college in his third or fourth year, when the professors are giving the subject importance, has little value, inasmuch as the student has unfortunately learned from practical experience in his freshman year much more than the instructor can teach him.

It seems to me that the subject should be taken up in the kindergarten — a rather rash statement, but it can be done by the teachings that we have in the kindergarten at the present time, starting on biological lines of instruction, leading up in the upper grades as they advance to more interest in the details of this subject. This question should be brought before the older classes in such a way as to create no disturbance, no comment, no suggestion of disagreeable thoughts or ideas, and I think to serve the purpose to that end some one of us has got to make a movement in the beginning. Everyone of us shirks from making that, for fear of being accused of seeking notoriety, but it seems to me that the State Boards of Health can approach the subject with propriety. They should issue monthly bulletins and continually stimulate each other by meetings. I know this subject is one of delicacy, or has been thought to be so. But the sooner we begin to make use of the words, "syphilis" and "gonorrhœa," instead of the words "venereal disease," the better, remembering that many of these cases are gonorrhœa without knowledge of the presence of the disease, brought on innocently, and without venereal contact. Only the other day a man came in from a barber shop with a typical primary sore on his lip. He said the barber shaved him and touched him with a stick of alum two weeks ago. It is a practice in

our skin clinic to give one of these circulars to every patient who presents primary lesions, and when the mucous membrane of the mouth is diseased, in order to impress the patient with these precautions. The State of Indiana has gone so far as to say that this disease is one which should receive legal control, inasmuch as their little precautionary card which they send out says that it is illegal to marry in Indiana if you have gonorrhœa or syphilis. I think if positive action could be brought about, quietly, not with ostentation, that much good could be accomplished by education by Boards of Health, if they were willing to take hold of it and would follow it up in a thorough manner.

DR. PALMER. I do not think any more important subject can be taken up by our Society than the one which we have today. The importance of it I do not think can be overstated. I want to state simply one feature which has come up in several ways here today, and to give my personal experience, querying in my own mind whether it is an average of what may be the sentiment in other portions of the State — that is, of public education. I have the feeling, Mr. Chairman, that the public is a good deal more willing to be taught on this subject than we give them credit for. I state that fact from my personal experience. In my section I have been invited before our local Woman's Club at three different times to talk on this question, and I was surprised at the fact because I got that rare compliment of being called into the same place three times in one season, which is a pretty good test of public interest. Of course, every time I called a hoe a hoe, and a spade a spade, and yet they were ready to listen. From that I have been called into another city's club and talked on the same subject, and there too I had ready listeners, and they realized the importance of it. I have for several years — I do not remember how many — gone to one of the leading public preparatory schools of New England, and

given a very plain, straight-to-the-point talk to the boys of that school on this subject, and although when I first begin to talk they have their side-glances, yet in a very few minutes it is the most attentive and interested audience that I have ever spoken to. I think such instruction is very much needed.

Gentlemen, we do not begin to realize the menace, mischief, danger and fatality that is due to this one neglected, tabooed, mystified subject, and which should be the most well-known, and I think it is entirely within our province to take the lead on this, and if this representative body will take the lead, I am very sure that many of the local Boards of Health throughout the State would be only too glad to follow. I think we can do much practical good by the discussion that we are having today, and perhaps from it we can have a future investigation and some legal restriction.

We cannot do here as I saw a professor do in Vienna, when he had a girl upon the table, young, pretty, and presumably innocent before that time. He questioned her until he learned who communicated the disease to her, and then in that despotic city he sent out a police officer, got the man who infected her, and brought him in and confined him in the hospital until he was cured. Would to God that we had some such power in democratic America.

DR. SHEA. Mr. President, that power has been used by the Boston Board of Health on several occasions. Often a case is brought to our attention by a keeper of a house. The girl has reached that stage where her money is gone, and she is to be put on the street. These cases are not brought to our attention very often, but they come occasionally. We visit these cases, and after investigation endeavor to find beds for these people, that they may be cared for. We are ready to remove those cases that are a danger to the community, not only tuberculosis, but also syphilis and gonorrhœa.

As I have said, some cases we have removed, and have removed them by force. Tomorrow, for example, a case is brought to our attention. A girl is in one of these houses. We make investigation and find that she is a danger to the community. The first step is to report this case and have her settlement looked up. The great majority of these cases have no legal residence in Boston. Cases are referred to the authorities for admission to the Long Island Hospital. That is the only hospital in Boston that will receive a case of syphilis. If that individual, man or woman, has no legal settlement in Boston, the case is refused, and the only place we can send the patient is to the State hospital at Tewksbury.

Again, sometimes we meet with the objection that it is illegal to remove that individual by force outside of the city of Boston, but we have taken the chance and sometimes sent these patients as far as the train and placed them in charge of the proper officer, and they have been sent to the State hospital. A great deal of this work could be accomplished here in Boston if we had the beds, but while conditions remain as they are, much cannot be accomplished. I think myself that this evil can be fought on the same lines probably as tuberculosis. The first and only requisite is, hospital accommodations; next a dispensary. The hospital should report these cases, and we will be able after investigation to pick up a great many of the cases. We could do a great work by taking these people and housing them in hospitals until we are sure they are free from danger. As I said, we have made a beginning, and we are only too willing to do more of this class of work if we had the necessary hospital facilities.

A dispensary modeled on the line of the dispensary that has been recently established by the Trustees of the Consumptive Hospital would be of immense benefit in selecting suitable cases for hospital treatment.

DR. R. E. STEVENS. Mr. Chairman, there is one little subject in relation to this talk that I had some personal experience in. Before I studied medicine I was a druggist, and it would be surprising to the medical profession if they knew the number of these people that go to the druggist. I do not believe there is hardly a drug store but what has the old Lafayette mixture, which I remember was dispensed. I can remember an inland city, a manufacturing city, where there is a great deal of gonorrhœa and syphilis, and it is increasing. There is a hospital officer in this city who said it always seemed a sad thing that a girl or young man could not get into the wards. If we have hard work in looking after our additional cases, for a certain class of doctors do not take any care as to restricting the family — a doctor leaves the house and everybody mixes with the family, — how can we expect that these people or this kind of doctors are going to report these cases of gonorrhœa and syphilis to the authorities? Not to go over what has been so nicely said, it has got to come through education. I find young ladies do not know anything about it. A man comes in with syphilis and he has had several connections since he got his primary lesion. I believe it has got to come through education. I wanted to speak about the drug store. If there was some way the State Board of Health could keep the druggists from prescribing over the counter, I think it would be one good step.

THE CHAIRMAN. Is there anything else to be said upon this subject? If not, I declare the discussion closed. We will now go back to the formal business of this meeting. The first item of business will be the reading of the records of the last meeting.

Upon motion of Mr. Rickards, duly seconded, the reading of the records was dispensed with.

THE PRESIDENT. The Executive Committee reports to you for election to this Association the following list of names:

FRANK H. KENNEDY of Brockton.
DR. CHARLES E. SIMPSON of Lowell.
DR. E. J. COTTER of Shawmut Ave., Boston.
DR. FRANCIS J. KEANY of Boston.
DR. WALLACE C. KEITH of Brockton.
DR. CHARLES E. MORSE of Wareham.
DR. ADAM S. MACKNIGHT of Fall River.
DR. HARRY LINENTHAL of Roxbury.
DR. J. WILLIAM Voss of Beverly.
DR. WILLIAM HALL COON of Lawrence.
DR. WILLIAM W. WALCOTT of Natick.
DR. MELVIN G. OVERLOCK of Worcester.
DR. LOUIS FISH of Fitchburg.
DR. HARVEY T. SHORES of Northampton.
DR. LYMAN ASA JONES of North Adams.
ERASTUS H. SMITH of Concord.

By a unanimous vote these gentlemen were elected members of the Association.

THE PRESIDENT. The next business upon your programme is the election of officers for the ensuing year.

Upon motion, duly seconded, it was moved that a committee of three be appointed by the Chair to select the officers.

THE PRESIDENT. I will appoint as members on that committee Dr. Worcester, Dr. Newcomb and Mr. Rickards. Gentlemen, this seems to be a favorable point to hear the report of the Treasurer. If there is no objection, the Treasurer will now make his report.

THE TREASURER. The report for 1907 reads as follows:

RECEIPTS

Balance from 1906	$1,515.81
Interest	47.51
Annual assessments for 1907	468.00
Annual assessments for 1906	30.50
Total	$2,061.82

EXPENSES

Postage	$43.10
Printing	47.80
Cigars and dinners for guests	29.50
Clerical assistance	9.25
Treasurer's bond	4.00
Report of meetings	85.20
Printing Journal, 5 numbers	281.26
Use of stereopticon	10.00
Travelling expenses of speaker	20.00
Total	$530.11
Balance to 1908	$1,531.71
Total	$2,061.82

Of this balance $1,262.51 draws interest in the Central Savings Bank, Lowell.

Respectfully submitted,

JAMES B. FIELD,
Treasurer.

Examined and approved as correctly cast and properly vouched for.

J. ARTHUR GAGE,
Auditor.

January 27, 1908.

By unanimous vote the Treasurer's report was adopted.

The Executive Committee reported the following nominations:

For President, H. P. WALCOTT, M.D., of Cambridge.
For Vice-President (First), S. H. DURGIN, M.D., of Boston.
For Vice-President (Second), C. V. CHAPIN, M.D., of Providence, R.I.
For Secretary, JAMES C. COFFEY of Worcester.
For Treasurer, JAMES B. FIELD, M.D., of Lowell.
For Executive Committee (for two years), FRANK G. WHEATLEY, M.D., of North Abington; G. ARTHUR BODWELL of Salem; L. M. PALMER, M.D., of South Framingham; a majority report of two for DR. JOHN F. WORCESTER of Dorchester; DR. J. J. GOODWIN of Clinton; GEORGE W. SMITH of Lawrence to fill an unexpired term of one year.

THE PRESIDENT. Gentlemen, you have heard the report of your committee. What action do you take thereon?

Upon motion, duly seconded, it was voted that the Secretary be authorized to cast a ballot electing these officers for the ensuing year.

THE PRESIDENT. The Secretary reports that he has deposited the vote and that the ticket as reported is elected. Is there any business to come before the Association at this time?

MR. RICKARDS. Mr. President, does the motion made at the last meeting in regard to the change of name of the Association come up before this meeting?

THE PRESIDENT. Unfortunately, by some misunderstanding, the Constitution is not being carried out. The

notice of the amendment was not printed upon the notice of this meeting as it ought to have been. It will appear, however, upon the notice of the next meeting.

THE SECRETARY. Mr. President, I will read the clause in the Constitution relating to amendments. It says: "Changes in the Constitution and By-Laws may be made at any regular meeting, written notice of the same having been given at the previous meeting, by vote of two-thirds of the members present." In order that this amendment may be brought up at the next meeting, written notice must be given at this meeting, and no written notice has been given as yet. The notice at the last meeting I think was a verbal one.

THE CHAIRMAN. The following notice of a proposed change in the Constitution has been presented: that the name, "Massachusetts Association of Boards of Health" be changed to the "Massachusetts Public Health Association."

DR. WORCESTER. I move that this matter be referred to the next meeting, in accordance with the Constitution and By-Laws.

This motion was duly seconded and passed unanimously.

THE CHAIRMAN. Before the members go I will announce the committee to act on Dr. Chase's motion. This committee consists of Dr. Palmer of Framingham, Dr. Chase of Brookline, and Dr. Swarts, Secretary of the Rhode Island Board of Health.

On motion, duly seconded, it was voted to adjourn.

BIOLOGICAL LABORATORY NOTES

By FREDERIC P. GORHAM,

Associate Professor of Biology, Brown University, and Bacteriologist, Providence Health Department

SOME CONVENIENT LABORATORY DEVICES. Drs. John S. Fulton and Wm. Royal Stokes report * certain time-saving devices from the Bacteriological Laboratories of the State and City Boards of Health, Baltimore, Maryland. A dust-proof sterilizing and storage box for petri dishes, a cage for incubating plates, a tray for fermentation tubes, an express package for shipping ten samples of water for bacteriological examination, a portable charcoal oven for making plate cultures at the well side, an extensible box for carrying inoculated plates in the field, slanting baskets for fluid culture media, an improved waterbath and a dust-proof sterilizer for 50 pipettes.

ANÆROBIC CULTURES WITHOUT EXCLUDING AIR. L. Girardi found † that anærobic bacteria would grow nicely in bouillon without the exclusion of air, if extracts from fresh internal organs, especially the liver, were added to the medium. The organic extracts absorb a considerable amount of the oxygen and, though the growth is slightly retarded at first, it soon establishes itself and the presence of the air no longer interferes with the development of the bacteria.

* Centralbl. f. Bakt., etc., I, Orig. XLIV, 1907, 89.
† La Reforma Medica, Sept. 21, 1907.

BACTERICIDAL ACTION OF SUNLIGHT. Dr. John Weinzirl reports * certain experiments to show the action of sunlight upon bacteria. He concludes that "the methods heretofore employed in testing the bactericidal action of sunlight do not seem to be well suited for this determination, since the results do not indicate the full power of this agent. The light is absorbed by the medium in which the bacteria are planted, and the glass cover both absorbs and reflects a considerable portion of the effective rays. A more suitable method consists in planting the bacteria upon glass or paper and exposing directly, *i.e.*, without glass or other cover, to the sun's rays. By this method most of the non-spore-bearing bacteria, including *B. tuberculosis*, *B. diphtheriæ*, *B. typhosus*, *S. choleræ asiaticæ*, *B. coli*, *B. prodigiosus*, and others, are killed in a remarkably short period of time, varying from two to ten minutes. So far as *B. tuberculosis* is concerned, it is the more refrangible rays, or the violet end of the spectrum, which are bactericidal for this organism."

A NEW STAINING METHOD. Dr. Henry G. Piffard states † that "it is well known that it is extremely difficult to stain living bacteria in a satisfactory manner, and if, on the other hand, they are killed by heat, they are in a measure shriveled up and details of structure, if they possess any, are invisible or at least obscure." To overcome this difficulty he recommends the use of what he calls a cyanide blue solution, as follows:

Distilled Water	100.0
Potassium cyanide, pure	1.0
Potassium carbonate, dry, C.P.	0.5
Rectified methylene blue	0.5

This mixture deteriorates on standing after a few days, and

* Jour. Inf. Dis. 1907, Sup. No. 3, 128–153.
† N.Y. Med. Jour. LXXXVI, 1907, 965.

it is better to dissolve the potassium cyanide in one-half the water, and the other ingredients in the other half, and mix as needed.

A small drop of the stain is placed on the center of the slide. To this is added a loopful of the desired bacterial or other culture, mixing it gently with the stain and preserving the drop form as much as possible. At the end of a minute a clean coverglass is applied, pressed down and the excess mixture absorbed with filter paper. It is now ready for immediate examination. The details of structure are much better preserved than by the usual methods.

This stain is applicable to the direct examination of milk as it does not stain the fat and the bacteria stand out in relief.

THE OPHTHALMO-REACTION OF TUBERCULIN. A very important contribution to the methods of diagnosis in tuberculosis has been made during the past year. It is an outgrowth of the method of obtaining a cutaneous reaction to an injection of tuberculin, first described by Pirquet of Vienna.* Wolff-Eisner in discussing a later paper by Pirquet on the above subject before the Berlin Medical Society,† suggested dropping a 1:10 dilution of tuberculin into the eye and noting the resulting inflammation. Calmette reported ‡ the first definite study of the reaction. He places upon the conjunctiva a drop of a one per cent solution of tuberculin, precipitated by ninety-five per cent alcohol. In positive cases congestion and lacrymation follow at the fifth hour, and fibrinous secretion is more or less abundant. The reaction ceases after eighteen hours in children and twenty-four to thirty hours in adults. There is but very slight reaction in negative cases and what little occurs is all over by the fifth hour. Repeated use of this method of

* Berlin, Klin. Woch., May 20, 1907, 644.
† Berlin, Klin. Woch., June 3, 1907.
‡ C. R. Acad. Sciences, CXLIV, 1907, 1324.

diagnosis seems to show that it is as reliable as it is simple, and a really valuable addition to the methods of diagnosis available in tuberculosis.

"WHITE ACID" FOR ETCHING GLASS. The use of gummed labels is inconvenient at best, and is especially so where sterilization is necessary. They may be avoided by the use of the so-called "glass pencils." But these are unsatisfactory and "mussy" and any good substitute would be welcomed. Probably the principal reason why the etching of test tubes, petri dishes, etc., so that an ordinary lead pencil may be used, is not more commonly practised, is because it has been difficult to find a satisfactory solution for etching the surface. Hydrofluoric acid does not give a smooth, even surface. In our experience we have secured excellent results by the use of a preparation which is sold to jewelers under the trade name of "White Acid." This may be made in the laboratory; the method is as follows: Neutralize hydrofluoric acid with ammonium carbonate, evaporate to dryness and dissolve the residue in hydrofluoric acid to make a saturated solution. Or if ammonium fluoride is available it may be dissolved directly in the hydrofluoric acid. The glass to be etched may be dipped into this solution for a minute or two, or the solution may be painted upon the glass, or it may be applied by means of a rubber stamp, if some lettering or device is required.

The solution should be allowed to dry upon the glass before it is washed off. The glass should be perfectly dry and there should be no moisture in the atmosphere of the room where the etching is done. The addition of borax (up to twenty-five per cent) to the final solution sometimes improves the result.

A NEW INDOL TEST. The test for indol production has long been more or less uncertain, unsatisfactory and

variable. It may be that the observations of Rivas,* Bacteriologist to the Pennsylvania Department of Health, may throw some light on the causes of the unsatisfactory nature of this reaction. He finds that the ordinary indol test is sometimes positive in his sterile broth control tubes, from which the sugar was removed by the ordinary method of inoculation with *B. coli* cultures. He suggests that other organisms than *B. coli*, organisms which certainly produce no indol, be used in place of the *B. coli* for the removal of the sugar, especially in those cases where the medium is to be used for the determination of indol production.

The author also recommends the substitution of another test for the regular indol test. This new test may or may not be a test for indol, but, he says, it can be properly regarded as a test for something closely related to indol, or at least some derivative of indican. He claims the new test is more useful than the regular indol test, because of the ease with which it may be applied, and the short time needed for the growth of the culture before testing (24 hours). He believes that the reaction is diagnostic for the colon bacillus. The test is as follows: About 1 c.c. of a 10 per cent sodium hydroxide solution and about 1 c.c. of a 50 per cent sulphuric acid solution are added to a 24 hour broth culture. A bright purple or pinkish coloration results. This reaction is positive in dilutions of the indol-like substance as high as 1:1,400,000, and requires no special precautions such as the "ring" test, for the coloration is diffused and general.

These observations are interesting and should be repeated and tested by others.

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* Jour. Inf. Dis. IV, 1907, 641.

CHEMICAL LABORATORY NOTES

By FRANKLIN C. ROBINSON
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FORMALDEHYDE DISINFECTION. In the October number of the Centralblatt für Bakteriologie, is an interesting report of an Austrian commission appointed especially to test methods of room disinfection with formaldehyde. They compared the convenience, efficiency and cost of such disinfection by the use of lamps to boil away the formalin, by the use of the solid mixture called "Autan," and by the use of potassium permanganate, the credit for which latter method they evidently intended to give, correctly, to the paper of Evans and Russell, issued by the Maine State Board of Health, but by some twisting they gave the names as Evans and Norris. The committee was working in the interest of military sanitation, and came to the conclusion, first, that any process involving the use of lamps has an element of danger which disqualifies it for military use. They object also to any process requiring the transportation of special apparatus. They find the fundamental objection to *autan* and all such solid substances is that they require special means for adding sufficient moisture to the air, and so their apparent simplicity of use is really complexity. Their experiments showed also that *autan* was uncertain in its results, that it deteriorates with age because the moisture of the air acts slowly upon it, and finally they found that *autan* was too expensive. They conclude by strongly recommending the Evans and Russell process by permanganate, as cheap, safe and efficient. They

recommend, however, that in its use the formaldehyde be diluted one-half. (In the recent work of Evans, he approves such dilution in special cases, especially if the formalin used is full 40 per cent.) It is interesting in view of conflicting results of others, that this committee got satisfactory sterilization of sputum containing tubercle bacilli and also in case of cultures containing sporing anthrax.

THE SMOKE NUISANCE. It is but saying what every thoughtful man knows, that there is no problem for which there is a greater demand upon chemists for its solution than that of the smoke nuisance. We used to be fairly free from it in New England because of the general use of hard coal, but all that is now changed, and not only manufacturing plants, but, worst of all, our railroads are centers and lines of devastating influence in this respect. Laboratories of hygiene have not, as yet, regarded it as within their province to make experiments on this subject, but if things go on as they have been and no other relief comes they will be obliged to take it up. Not only is it an inconvenience to man, if not a direct poison, but also an injury to vegetation. Recent experiments in Germany show that, while sulfur dioxid in the air is not perceived by man in greater dilution than 1 to 50,000, it is decidedly poisonous to plants at a dilution of 1 to 1,000,000. And it is undoubtedly true that considerable areas of air near a railroad on which many trains a day run contain more than those limiting dilutions many times a day, for the soft coal used in locomotives has a large impurity of sulfur.

PEPTONE FORMED BY SALTS OF URANIUM AND THORIUM. B. Szilord * says that when egg albumin is put into a boiling solution of thorium or uranium nitrate (2 per cent) the particles first shrink, then swell and go into

* Jour. Chim. Physique, 5, 1907.

solution, and the solution gives the reactions for albumose and peptone.

It will be interesting to find out whether this property of these salts is in any way connected with their radio-activity.

SODIUM THIOSULFATE AS AN ANTIDOTE TO MERCURY POISONING. A recent article explains the greater efficiency of sodium thiosulfate over simple sulfids as an antidote to mercury poisoning, as due, not to the quicker formation of insoluble mercury sulfid, but to the formation of an *ion* containing mercury, which, though absorbed, is not an active poison.

PERSONAL HYGIENE

By PERCY G. STILES, Ph.D.
Instructor in Physiology, Massachusetts Institute of Technology

FATIGUE SUBSTANCES AS STIMULANTS. It has been known for forty years that the decomposition products which are formed in contracting muscles may diminish the working power of these muscles, and that they may be carried in the circulation and extend their depressing influence to resting tissues. In this class of toxic compounds we recognize carbon dioxide, paralactic acid, and potassium di-hydrogen phosphate. Other waste products probably exist, but have not been identified. Attention has recently been called to a new aspect of these substances. Dr. Frederic S. Lee * of Columbia University has proved that the same cell products, which in large amounts lower the irritability and the working capacity of muscles have a positive stimulating effect when the concentration is low. This makes intelligible the phenomenon known as the Treppe (the increasing height of the first few contractions in a series caused by equal stimuli). The process in daily life which is analogous to the Treppe of the laboratory is what we call "warming up." According to Dr. Lee's results a muscular mechanism is not in its best condition for work when most thoroughly rested, but rather when by moderate activity it has generated within itself stimulating products in a moderate amount. But in actual experience there is of course another and probably a more important element in the "warming up" process, namely

* American Journal of Physiology, 1907; XVIII, 267; XX, 170.

the improvement in the circulation due to mechanical effects of the movement.

The conception that fatigue products at first favor activity and only later retard it may be of great value in clearing up various hygienic problems. Take for example the explanation of sleep. The lapse into unconsciousness after the customary hours of waking may be primarily due to cerebral anæmia produced by the failure of the vaso-motor center to maintain full activity, as Dr. Howell supposes. But back of this direct cause lies the general question of fatigue products and their action upon the system. Upon the old assumption that such substances must always be depressing it was difficult to see why the efficiency of the body did not steadily decline from a maximum early in the day to evening levels little above that of sleep. That the general command of mental faculties and muscular resources is often at its best in the evening was not easily explained. The facts of the case are readily covered by Dr. Lee's observation. It is perfectly conceivable that nerve-centers, as well as muscle fibers, may be rendered irritable by the same chemical agents which will later narcotize them.

An important matter which has been investigated by Dr. Lee is the question, whether the acid character of fatigue substances is the sole cause of their action. That it is one cause seems clear, for many different acids besides those naturally formed in muscle have qualitatively the same influence. That it is not the only cause seems equally plain, since a neutral lactate shares in a great measure the effects obtained with lactic acid.

A THEORY OF FEVER. Dr. Arthur R. Mandel * of the Bellevue Medical School has recently published results which extend conclusions reached by him in 1904, and lead to a peculiarly interesting and tangible theory of the cause

* American Journal of Physiology, 1907, XX, 439.

of fever temperatures. He has found that the high temperatures commonly observed after surgical operations (but in the absence of infections) are attended by a marked increase in the xanthin bases of the urine. By means of experiments upon a monkey he has shown that xanthin and its homologues cause a marked rise of temperature when introduced into the circulation. Under normal conditions the xanthin bases produced by cell-metabolism and those derived from the food are very largely oxidized to uric acid. This latter body, though it is held responsible for much mischief in the human frame, does not upset the mechanism which regulates heat production and heat loss.

Dr. Mandel believes that after a surgical operation the production of xanthin bases from the injured tissue is often so great that their transformation into uric acid is far from complete. The excess of unchanged nuclein bases constitutes the specific poison which acts upon the nerve-centers having to do with temperature regulation, perverting their influence and establishing for the time an abnormal standard to which with disastrous results the system is stubbornly held. The author points out that in fevers due to infection, the xanthin bases may play the same part. The toxin may not directly affect the heat-centers, but by changing the course of metabolism it may increase the production of xanthin bodies or hinder their oxidation. The secondary effect will then be identical with that in "aseptic" fever. The "heating" property popularly ascribed to meat and its well-recognized unfitness for the fever patient's dietary are naturally recalled.

VETERINARY HYGIENE

By VERANUS A. MOORE, B.S., M.D.
Cornell University, Ithaca, N.Y.

THE CONTROL OF BOVINE TUBERCULOSIS. The Cornell University Agricultural Experiment Station has recently issued a bulletin on bovine tuberculosis in which the nature of the disease and methods of control are discussed. The three methods for the elimination of bovine tuberculosis are recommended: First, the destruction of all advanced cases. Second, the slaughter for beef under proper inspection of animals fit for food providing the disease is localized. Third, the application of the Bang method for the purpose of replenishing the herds with sound animals from the tuberculous stock. In addition to these, some principles to be observed in the elimination of the disease are given. These are based on the principle that if the spread of the virus is checked the disease will promptly disappear. The elimination of the disease from extensively infected districts implies a change of method in the handling of cattle. The dairymen's attention is called to the consideration of the following conditions:

1. There are some cattle suffering with advanced tuberculosis. These are of no value, but a menace to the health of the herd, and consequently should be promptly destroyed.

2. There are many infected, though but slightly diseased, that are poor milk producers but which do have a good beef value.

3. There are presumably many valuable strains of cows and many high-bred animals that are infected though but

slightly diseased. The value of these animals is in their offspring quite as much or more than in their milk production. The Bang method affords a means for preserving these animals and procuring their offspring without danger to others.

4. There are large numbers of uninfected herds, and many cows in the infected one, that should be *carefully protected* from infection.

5. Tuberculosis cannot spread unless the bacteria that produce it are brought by some means to the uninfected animals. They are most commonly carried by infected individuals or their products.

As it is to the advantage of every cattle owner to have a sound herd, the greatest progress will be made in the eradication of tuberculosis when the greatest number of owners take up the work of elimination for themselves, with the aid of competent veterinary advice. The first steps to be observed in the procedure against tuberculosis may be summarized as follows:

1. Promptly eliminate from the herd all animals that have tuberculous udders or that give evidence of being tuberculous. This will greatly reduce the danger from the milk.

2. As soon as possible have the tuberculin test applied to all the remaining animals to ascertain which individuals are infected. These are the ones that are still dangerous to the herd.

3. Separate the well animals from the infected animals. When the reactors are pointed out, the most economic method of dealing with them must be determined from the local conditions.

4. The stables in which the diseased cattle were kept should be thoroughly disinfected.

5. The non-reacting animals should be tested every six months until all those previously infected are detected and removed. This will leave a sound herd which will remain so if properly protected.

6. In buying cattle, great care is necessary not to bring infected animals into the sound herd. They should be carefully tested with tuberculin, and retested in three to six months, and all reactors removed.

7. It may be found desirable, in order to replenish the herd with sound animals, to modify present methods and raise more calves, and to add a smaller number of cows by purchase. The first purpose is to obtain a sound herd, and it may be possible that the quickest and cheapest method will be to raise it.

MUNICIPAL SANITATION

By CHARLES V. CHAPIN, M.D.
Superintendent of Health, Providence, R.I.

FREE PUBLIC MEDICAL SERVICE. Newsholme, in a paper read before the British Medical Association, at its 1907 meeting,* sets forth very forcibly the evils attendant upon our present haphazard system, or the rather lack of system, of medical service. He does not believe that hospital abuse, contract work, and the fierce competition, and the small compensation of medical practitioners among the poor, can ever be remedied along existing lines. An enormous amount of disease and death among the poor, and those in moderate circumstances, is due to the fact that for these classes early and efficient medical care cannot be obtained. There is also a considerable waste, owing to the lack of co-ordination between the various charitable and municipal medical services. The remedy is for the municipality to furnish free medical service to all who desire it, just as education is now furnished. Newsholme sees no reason for expecting pauperization as the result of free medical service any more than as the result of free teaching. He believes that this municipalization of the medical service is demanded in the interests of preventive medicine. It may be possible to advocate such a scheme in England, but it is to be feared that its discussion in the United States would come to naught.

A FRESH AIR SCHOOL. On January 27 the city of Providence opened a fresh air school, for the instruction chiefly of children living in tuberculous families. It is designed for susceptible children and closed cases of tuber-

* British Med. Jour., Sept. 14, 1907.

culosis, though a few open cases might possibly be admitted. It is an entirely municipal undertaking, except that lunches and sitting-out-bags have been furnished from private sources. The school opened with ten pupils, and there are now eighteen in attendance. An old school-building near the center of the city was utilized by removing the south wall of one room and filling in the opening with sash, hung at the top, so that the whole space can be left open to the air. A stove is set up in the other corner of the room for heating soapstones, warming soup, etc. The school inspectors have the medical direction of the school.

RESPONSIBILITY FOR THE REPORT OF BIRTHS. Dr. William H. Guilfoy, of the New York City Department of Health, calls attention to an error in the last number of the Journal. It was there stated that the Supreme Court had decided that it was not sufficient for a physician to mail the report of a birth; he must see that it was actually received by the health department. This was the opinion of the Dissenting Justice, not of the Court.

CONTROL OF MEASLES. The closure of schools on the appearance of the first case of measles was referred to in the last number of this Journal. Woolwich, one of the burroughs of London,* was divided into two districts, in one of which was adopted this method of immediate closure for measles, while in the other, the schools were not closed, but all children in infected families were excluded. This experiment was carried on for three years, 1903–1906, and it is stated that the prevalence of measles was greatly limited in the first district. Usually in London, children from infected families are allowed in school if they have had measles and, according to McVail,† when a child first enters school,

* Report of the Medical Officer of Health of the County of London, 1906, 29.
† Prevention of the Infectious Diseases, Macmillan, 1907, 140.

it is recorded whether or not he has previously had measles. The question of the value of disinfection after measles is discussed by Brown, Medical Officer of Health of Bermondsey, London.* He concludes that only a very small number of cases can possibly be attributed to contagion remaining on things, or in the house after recovery, and that, therefore, disinfection is unwise, as it can accomplish no appreciable good, and is expensive and annoying.

A DENTIST FOR SCHOOL CHILDREN.† The city of Liverpool has recently provided a dentist at a salary of $750 per annum for the day industrial schools, which have an attendance of about 1,300 children.

NOVEL USE OF TRANSFERS. The backs of street-car transfers used in Baltimore during February, and those used on Sundays during March, will contain a brief tuberculosis circular.‡

CITY MILK CONTESTS. A recent publication of the Department of Agriculture § describes a prize contest which was held in Cleveland last year. Prizes were offered for milk, cream and general farm conditions. The contest was held under the joint supervision of the United States Department of Agriculture and the Municipal Health Department, and the prizes were offered by the Chamber of Commerce. The contest was most successful as means of educating producers and handlers of milk, and instructing the public as to what clean milk really means.

* Public Health, January, 1908, 257.
† Public Health, January, 1908, 275.
‡ Journal of the American Medical Association, Jan. 4, 1908.
§ Cir. 117, Bureau of Animal Industry.

SANITARY ENGINEERING NOTES

By ROBERT SPURR WESTON
Assoc. M. Am. Soc. C. E.

STUDIES OF SEWAGE DISTRIBUTORS FOR TRICKLING FILTERS.* The article is a comprehensive study of the general problem of sewage distribution, with a comparison of the efficiency of distributors of various types. An extended account of experiments with gravity distributors is given, and the efficiency of the best of these is compared with the Old Salford and the New Salford, Birmingham, Columbus and Waterbury, with accompanying tables. The methods of measuring this efficiency and of calculating its coefficient are adequately explained.

THE PREVENTION OF STREAM POLLUTION BY STRAWBOARD WASTE.† The present methods for disposal of waste liquor from strawboard manufacture, which amounts to about 65,000 gallons of waste, containing 1,173 pounds of straw and mineral matter and 490 pounds of lime for each ton of the product per year, are inadequate. Mr. Phelps has carried on experiments at one factory for the satisfactory removal of the sludge at an economical price. His summary of the article is chiefly as follows:

The present method for the treatment of the waste liquor, that of sedimentation in large fields, is unsatisfactory and expensive, and it proceeds on a wrong principle. Filtration of the liquor through sand, so-called mechanical filtration, but without coagulants, after a short period of sedimenta-

* Winslow, Phelps, Story and McRae, Technology Quarterly, XX, 325.
† E. B. Phelps, Technology Quarterly, XX, 292.

tion will remove 93 per cent of the suspended organic solids and 98 per cent of the total suspended matter determined as turbidity. The resulting effluent can be discharged into an equal volume of reasonably pure water without creating a nuisance. In particular, there will be no sedimentation or organic matter. If its discharge into a seriously polluted stream should bring about precipitation of sewage matter and consequent nuisance, the blame should in all equity be fixed upon those contributing the sewage. The sludge resulting from the sedimentation tanks, after pressing or spontaneous drying, is innocuous and makes good soil. It has some value as a fertilizer and is particularly valuable to mix with the clay soils of the middle West to render them more porous. Other uses of the materials, as cheap dye or substitute for papier-mache, are further suggested, but they need further study. The cost of the entire process is sufficiently low to admit of its adoption wherever stream pollution is serious.

SEWAGE SYSTEM AND SEWAGE DISPOSAL WORKS AT KEW BEACH, TORONTO, CANADA.* A short account of the sewers and disposal works, and cost of same ($66,888), installed at a summer resort on the shore of Lake Ontario.

REMOVAL OF MANGANESE FROM DEEP WELL WATER.† Like other towns in that part of the world, Arad, Hungary, suffers from a lack of good drinking water. Wells sunk in 1895 were found to contain only slight traces of iron, which was removed by aeration, and the Fischer system of porous-tile filtration. After a number of years, deposits of manganese were found in the distribution system, although none was found in the collecting

* C. H. Rust, Eng. News, 58, 386.
† Eng. Rec., 56, 517.

reservoir connected with the well system. A pressure mechanical filter was placed between the reservoir and the distribution system and so far has removed the manganese. The deposit in the pipes consists of 71.02 per cent of MnO_2 and 5.95 per cent of MnO. It is interesting to note that most of the manganese was precipitated upon the galvanized iron strainers of the water meters, while copper or brass strainers were but little clogged up. There was very little deposit in the service pipes, but in the force main there were numerous brown clots on the upper surface of the pipe and a deposit on the bottom of about 1 mm. The water has a hardness of 140 parts per million, and the addition of milk of lime would effect a more complete removal of the manganese than does the pressure filter.

WATER POLLUTION IN THE OSWEGO AND UPPER HUDSON RIVER DRAINAGE AREAS.* Comprehensive investigations of important streams in New York State have recently been made by the State Sanitary Department, of which this article contains some abstracts. The condition of the main stream of the Oswego is bad, though sedimentation in the numerous lakes mitigates pollution to some extent. On the Upper Hudson industrial wastes affect almost exclusively public convenience and comfort, but do not endanger life. There seems to be promise of more practical results from these efforts than usually follow such. Statements have been sent to the city officials for enforcement of sewage-purification laws, but the future may require more complete methods than at present insisted upon.

REPORT ON SEWAGE DISPOSAL OF THE CALUMET DISTRICT THROUGH THE CHICAGO DRAINAGE CANAL.† Two methods of purification are proposed

* Eng. News, 58, 484.

† Mr. Rudolph Hering, of Hering & Puller, N.Y., Eng. News, 58, 501.

and compared: first, by use of sprinkling filters; second, by repeating the method now used in Chicago, namely, building a canal from the Calumet River across the low divide to join the present Sanitary and Ship Canal at Sag, and by reversing the flow of the Calumet River to carry in it sufficient water to properly dilute the sewage. Mr. Hering proposes the second as more economical and more advantageous in other ways.

WATER SUPPLY AND SEWERAGE OF THE NEW INDUSTRIAL TOWN OF GARY, IND.* A description of the sanitary engineering work in Gary, which consists of a water supply taken through a town extending into Lake Michigan and pumped to a standpipe. The sewerage is on the combined system, and storm overflow will discharge into the Calumet River. The ordinary flow will be pumped to a suitable purification site nearby. Intermittent filtration preceded by sedimentation is recommended as the best means of disposal.

NOTES ON ORIENTAL WATER SUPPLIES.† In this paper are given briefly the salient features of some oriental water works, such as source of supply, size, style and capacity of filters, with date and cost of construction, also interesting data in comparison with those relating to American supplies. Greater detail on Japanese works is given by the author in the *Engineering Record*, 55, page 562.

"COMPOSITION OF THE DEAD SEA WATER."‡ The authors compare two analyses of Dead Sea water, one made in 1857, one in 1907. Salt contents were 22.30 and 22.02 per cent, respectively. The 1857 sample had de-

* Eng. News, 58, 489.

† George A. Johnson, Paper read at the Twenty-seventh Annual Convention of the Am. W. W. Association.

‡ A. Stuzer and A. Raich, Chem. Ztg., 31, 845, 1907.

cidedly less potassium and less sulphates. The Dead Sea water is characterized by the high amounts of easily soluble chlorides, especially of Mg and Na which it contains.

"MANGANESE IN THE BRESLAU GROUNDWATER SUPPLY." * This is one of many articles which have appeared in the chemical and engineering press about the occurrence of large amounts of manganese in the new groundwater supply of Breslau. The authors are chemists and have charge of experiments which are being made to ascertain the best means of removing the manganese from the water in question. They note that this is the first time that a main water works in a large city has been troubled with manganese. To be sure, manganese usually accompanies iron in groundwater. Such a composition is frequently met with in north Germany. At Hanover, manganese is precipitated from the water as an hydrated oxide. Manganese is present in arable soil in many silicates, in the tertiary rocks and in almost all plant ashes, especially those from oak wood. Some bog iron ores were found to contain as much as 20 per cent of manganese. The wells at Breslau were sunk through the alluvium into water-bearing sand. The material comprising the alluvium was rich in manganese. When the wells were first put into use, the amounts of manganese after the usual treatment for the removal of iron were not noticeable, but after the Oder River had overflown the ground in which the wells were sunk manganese was washed from the upper layers of the soil into the water-bearing strata, and soon became so high in amount that the wells had to be put out of service. On the average the water from the wells contains about eight parts of manganese per million. The authors note the necessity of purifying this water because of the lack of other satisfactory sources of supply, and the following processes have been or are now being tried:

* H. Luehrig and A. Blasky, Chem. Ztg., 31, 255.

1. Precipitation by potassium permanganate. This process is too costly.

2. Electrolitic processes. These effect good results, but are far too costly.

3. Precipitation by mixing with a dark-brown water or with humous matter of various kinds, as is practiced with success at Posen.

4. Purification by means of calcium aluminum silicate. This process takes a long time and the silicate costs over ten cents a pound.

5. Precipitation as hydrated oxide. This seems to be the best principle to work upon. Either KOH or NaOH work very well but are costly. Calcium acetate is some better than these. The addition of lime to a slight excess effects the removal of the manganese in a satisfactory manner and is the cheapest of all the processes. The authors believe that in practice the procedure will be as follows:

a. Iron removal by aeration and filtration.

b. Mixed defecated water with lime water.

c. Aeration.

d. Sedimentation.

e. Filtration through sand and gravel.

f. Filtration through fine sand filter and treatment with CO_2.

CANADIAN NOTES

By JOHN A. AMYOT, M.D.
Bacteriologist Provincial Board of Health, Toronto, Ontario

ADVANCES IN PUBLIC HEALTH IN WESTERN CANADA. Public Health work is advancing rapidly in the three western provinces of Canada.

In the old Province of British Columbia, under Dr. Fagan's stimulation, the fight against tuberculosis is progressing well. The popular subscription to supplement the government's aid last month had reached the magnificent sum of $80,000, and promises to become quite large.

The two-year old Province of Alberta has established a provincial university, to which a medical faculty will be attached. It has framed a medical act to regulate the entrance to the practice of medicine, and to provide a curriculum for the University. A Public Health act has been put through and a Public Health Laboratory established at Edmonton, under the direction of Dr. Revell, formerly of Chicago University. Large hospitals are being built at Edmonton and at Calgary.

Its twin Province of Saskatchewan is also moving for a University. It has a working public health act, and a well-equipped laboratory, under the direction of Dr. Charlton at Regina. In that city also a fine new hospital is about to be opened.

The now already old province of Manitoba, not to be left behind, has a fine working public health laboratory in the University building at Winnepeg, under the direction of

Dr. Bell. A dairy by-law to supervise milk as it comes from the dairies, and the subsequent handling and disposal of the same, especially in restaurants and boarding-houses, has gone through. At Selkirk, Brandon, and at Winnepeg fine new hospitals are to be opened. The health authorities are earnestly at work preparing for the coming meeting of the American Public Health Association at Winnepeg, next summer, both as to scientific work and entertainment.

IMPROVEMENT IN PSYCHIATRY IN ONTARIO. The Ontario government is at the present moment carrying out a plan developed during the last two years, to make improvement over the conditions that existed previously in the eight asylums for the insane of the province under their direct control.

Many insane were previously housed in the jails. Increased accomodation has been and is being provided in the asylums for these, to prevent any continuance of this very undesirable condition.

The regular asylums contained many senile and harmless dotards. These took the place of those that should have their rooming for treatment. Provision for these will be made in the county and municipal almshouses and homes.

The epileptics will be cared for at Woodstock. The idiots and imbeciles will be looked after at Orillia. The old chronic and more or less harmless ones will be taken care of at Brockville.

The cottage plan of building will be more followed than heretofore, so that in each of the asylums treating the more or less acute, the violent and the curable cases, isolation and classification will be facilitated.

For the acute, and especially the incipient, cases clinics are being established in connection with the general hospitals in the larger centers, such as Toronto, London and Kingston, and in Toronto a special psychiatric clinic, for the special

study of certain forms of insanity and for teaching purposes, is to be established. This last will be under the direction of Dr. C. K. Clark, who has lately been made Professor of Psychiatry in the University of Toronto. Investigation laboratories are being established under the direction of special pathologists in each of the large asylums.

Much benefit, and justly so, is expected to result from these decided improvements.

The Hon. Mr. Hanna, the minister of the government, under whose charge this department of charities falls, will certainly receive the commendation he so richly deserves for his work in this regard, when it is properly appreciated.

PURE WATER AT MILITARY CAMPS. At the various militia camps in Ontario during the last few years considerable trouble has been experienced with water supplies. The Militia Department at Ottawa is taking the subject seriously under its consideration. All attached medical officers are required to take special work now in health laboratory work, to fit them to intelligently supervise the protection and correction of water supplies. It is proposed to establish regular sewage disposal works and water filters at the permanent camp at Petawawa as a beginning, and then it is hoped to do the same at the other camps in this province at Niagara, London, etc.

PURE WATER IN TORONTO. Toronto is on the verge of submitting a by-law for the purification of its water supply from Lake Ontario. The question yet to be settled is whether this is to be by sewage disposal or by slow sand filtration. It is to be hoped the latter prevails.

PUBLIC HEALTH LEGISLATION, NEWS AND NOTES

By F. H. SLACK, M.D.
Assistant Director Boston Board of Health Laboratory

PURE MILK IN RICHMOND, VA.* The Richmond City Council last year voted $2,000 for the sanitary improvement of the milk supply. This became available late in March. Plans were at once presented to the Board of Health, approved by them, a Dairy Inspector was elected and all was in readiness for the start, which was made the first of May.

The main features of the work have been (1) dairy inspection, (2) bacteriological examination of milk samples, (3) educational work, both among the dairymen and the public, and (4) suspension or revocation of permits for selling milk in those cases in which all efforts to secure improvement, by educational and persuasive methods, proved unavailing.

The score-card recommended by the United States Department of Agriculture was adopted and has been of untold value.

The records of the Dairy Inspector show that 118 dairy farms have been inspected and scored, of which ninety-two are now supplying milk or cream to the city. Of the other twenty-six, six were refused permits on account of not being up to requirements, eight permits were revoked, twelve went out of business rather than meet the requirements.

In six months there have been built sixty-seven new milk houses, and twelve are now ordered. Few of the dairies had "aerators" for cooling their milk, now all have them. Eleven new cow barns have been built and eight are now under construction.

* Monthly Bulletin of Richmond Health Dept., October, 1907.

Improvement in the milk supply has been marked. In May only 29.3 per cent of all the dairies inspected scored over 50 per cent, while in October 76.3 per cent scored over 50. In May nearly half of the dairies (48.3 per cent) scored under 40 and 13.8 per cent were under 30, while by September both these classes had been eliminated.

SANITATION IN CUBA.* J. R. Kean, adviser to the Sanitary Department, in a letter to the Provisional Governor, states that, "There can be no doubt that the delay in organizing the National Sanitary Service after the establishment of the Cuban Republic, as well as the loss of the sanitary chiefs by the withdrawal, on May 20, 1902, of the American officers, who had been engaged in that work, made an unfortunate lapse in sanitary work throughout the island, but less in Havana than elsewhere.

Reports of local health officers a year ago show inadequate appropriations and gross sanitary neglects. A considerable number stated that all sanitary services in the municipality were at an end.

The sanitary service of the City of Havana was supported from the national treasury with lavish liberality, and was very efficient. The Cuban government also contributed to the sanitary expenses of fourteen other cities, in the budget of the fiscal year 1906–7, the sum of $652,000, with an additional item of $200,000, which was to be expended for the sanitation of cities, at the discretion of the executive.

It is evident that the important sanitary work of the island was supported by the national treasury rather than by the municipal governments. The entire failure of the latter in this respect was well recognized in Cuba, and several laws were proposed in the Cuban Congress looking to the nationalization of the municipal sanitary services.

The assumption by the State of the entire control of muni-

* A M. A. Journal, Jan. 25, 1908.

cipal sanitation was effected by decree No. 894, signed August 26, of this year.

The principal objects accomplished by this law are:

1. The abolition of the municipal boards of health, and the transfer of all powers previously vested in them, to a national official, the local sanitary officer, who is appointed by the highest executive authority.

2. The assumption by the State of the cost of all municipal sanitary works and services, with the proviso that the municipal governments shall refund to the State, in consideration thereof, one-tenth of their total incomes for each year.

3. An increase in the powers of the chief sanitary officer, who is made, in fact, the administrative authority of the department. The Superior Sanitary Board is at the same time reduced in number and authority, a majority of its members being members *ex-officio* of the National Sanitary Board. The role of the new National Sanitary Board will be rather advisory than administrative.

ISTHMIAN CANAL REPORT.* Wm. C. Gorgas, chief sanitary officer of the Canal Zone, prefaces his December report to the Acting Chairman of the Isthmian Canal Commission with the following letter:

Sir: I herewith forward report of the Sanitary Department for the month of December, 1907. There has been a slight improvement in most all the rates over that of November. The annual death rate for November, for all employees, was 20.66; that for December, 18.11. For the total population the death rate for November was 28.86; that for December, 28.50 — almost the same.

I invite attention to the great difference in the death rate between the Canal Zone (American territory), 21.67 per

* Report of the Department of Sanitation of the Isthmian Canal Commission for the month of December, 1907.

thousand, and the Panama territory, located in the same Zone (the towns of Panama and Colon), 36 per thousand.

The sick rate among the employees shows a slight improvement for December over November, December being 19.76 and November 20.49.

Comparing December of this year with December of 1906, a marked improvement is noticed. The annual death rate for December, 1906, was 30.27 per thousand; that for December, 1907, 18.11 per thousand, an improvement of nearly 12 per thousand. Taking the whole population of the Zone, including the towns of Panama and Colon, the annual death rate for December, 1906, was 39.21 per thousand. The same rate for December, 1907, was 28.50, an improvement of over 10 per thousand.

The sick rate for December, 1906, among the employees was 30.57 per thousand; for December, 1907, 19.76 per thousand; an improvement of over 10 per thousand between the two years — that is, that last year where we had three men sick from our employees all during the month of December, in the same time this year we had only two sick.

There has been a very marked decrease in malaria during the year. Considering the deaths caused by disease among our laboring force, I find that last December, with a force of 29,000 men, we had 13 deaths from malaria. This December, with a force of 45,000 men, we had six deaths from malaria.

In considering the number of cases of malarial fever the ratio is about the same. Last December we admitted into our hospitals 1,617 cases of malaria; this December, 801. Considering the size of the force during the two years, we had just one-quarter as much malaria this December as last December.

We had no cases of yellow fever, smallpox, or plague anywhere on the Isthmus during the month. It has now been two years since yellow fever has disappeared from the Isthmus.

I consider yellow fever and malaria accurate measures of

the effectiveness of the sanitary work done, and I submit these figures as showing that the work of the Department during the month has produced the desired results.

PROPOSED LEGISLATION IN VIRGINIA.* A Bill to Provide for Teaching in the Public Schools the Modes by which the Dangerous Communicable Diseases are Spread, and the Best Methods for the Restriction and Prevention of such Diseases.

SECTION 1. That there shall be taught, in every year in every public school in Virginia, the principal modes by which each of the dangerous communicable diseases are spread, and the best methods for the restriction and prevention of each such disease. The State Board of Health shall annually send to the public-school superintendents and teachers throughout this State, printed data and statements which enable them to comply with this act. School boards are hereby required to direct such superintendents and teachers to give oral and blackboard instruction, using the data and statements supplied by the State Board of Health.

SECT. 2. Neglect or refusal on the part of any superintendent or teacher to comply with the provisions of this law shall be considered a sufficient cause for dismissal from the school by the school board.

Any school board wilfully neglecting or refusing to comply with any of the provisions of this act shall be subject to a fine, the same as for neglect of any other duty pertaining to their office. This act shall apply to all schools in this State, including schools in cities or towns, whether incorporated under special charter or under the general laws.

CALIFORNIA. Inspectors appointed.† The State Board of Health has appointed five inspectors whose duty it is to

* Bulletin of Virginia Board of Health, November, 1907.

† Journal A. M. A., Jan. 4 1908.

inspect the bodies of the dead of the coast and bay cities and counties, where there are suspicions that bubonic plague existed.

MINNESOTA. Free Vaccine Virus.* On and after January 1, the State Board of Health will distribute vaccine virus free to health officers throughout the State.

NEW YORK. Rabies in Rochester.† The entire county of Monroe has been quarantined because of the positive proof that this disease was in Rochester and the surrounding towns. This rigid quarantine was considered necessary because so many dogs at large have bitten live stock, etc.

MASSACHUSETTS ANTIVIVISECTION BILL. We understand from a reliable source of information that an antivivisection bill introduced at the beginning of the present session of the legislature has been withdrawn by the petitioners. *Heu prisca fides!*

STERILIZATION BY LIGHT.‡ Dr. Carmine Cianci, of the University of Naples, describes an efficient method for sterilizing gelatine ophthalmologic discs. Small glass tubes, each holding several discs, were placed in a glass petri dish, ten inches distant from a twenty-five candle-power acetylene gas flame with parabolic metal reflector. The temperature did not rise much above 90° F., so that there was no need of a solution of alum to absorb the heat. Exposure was intermittent according to convenience, total exposure varying from twenty hours for uninfected discs to sixty hours for discs infected with *Bacillus anthracis* and then incubated. The discs were completely sterilized and the alkaloid in them was not in any way altered by the exposure to light.

(Abstract by Calvin G. Page, M.D.)

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* Journal A. M. A., Jan. 4, 1908.

† Journal A. M. A., Jan. 4, 1908.

‡ Giornale Internazionale delle Scienze Mediche, Vol. XXIX, 1907.

COMMUNICATIONS

(In accordance with a vote of the Council of the Laboratory Section, the following letter was prepared by the Secretary and sent to every member of the section.)

To the Members of the American Public Health Association, Laboratory Section.

Gentlemen: At the Atlantic City meeting of the American Public Health Association, the Laboratory Section, after considering in Committee of the whole, the report of the Committee on Technical Progress (see constitution of Laboratory Section, Trans. 1905, or Supplement No. 2, Journal of Infectious Disease, May, 1906), voted that the council of the Laboratory Section proceed to secure Technical Committees on Standard Methods and Interpretation of Diagnostic and other procedures relative to public health work, thus extending the admirable work already accomplished by the Committee on Standard Methods of Water Analysis, and the Committee on Standard Methods of Bacterial Milk Analysis, to the other important hygienic laboratory technicalities. The council was directed to prepare and forward to each member of the section a list of proposed subjects on which such committees might be formed, to invite each section member to signify his first, second and third choices of committees, and to ask each member to consider that the expression by him of such preferences would carry with it the earnest intention and desire to work directly upon the subject matter of the committees selected, using every endeavor to contribute material, advice, or direct experimental work, as the necessities of the case may require, to the report of his committee, in order that a report standardizing the best

practice of hygienic laboratories of the country may be prepared.

This work must necessarily extend over several years. The first year's report might well be restricted to a review of the existing methods; the second year's report might well be restricted to the result of work directed to determining which is the most rapid, accurate and efficient procedure; the third to the final recommendations of the committee; but each committee will be entirely free to conduct its own work as it sees fit.

When the replies to this letter are received the council, working under rules already in force, will select from those volunteering on each subject a chairman and committee to deal with it. The names of the chairmen selected will be published, but the names of the members will not appear until the first report of the committee is received.

The reasons for this method of selecting committees are as follows:

1. Heretofore committees have been selected directly by the council, without consultation with the appointees, with the result that the members selected were often, and for various reasons, such as change in the natural trend of their own laboratory work, changes in their functions or staff, etc., quite unable to act.

2. Such appointment carried with it no agreement that the member selected would take interest in the committee work, even though his own work tended in the same direction.

3. Since a committee that does not work is worse than useless, an aggressive and constructive policy demands that the committees be so formed as to secure as members those not only capable but also willing and earnest in their convictions as to the value and need for any particular work, rather than those who while capable do not wish to undertake it for any reason, such as existing excess of routine or other work in their own professional fields, etc.

4. The section wishes to try this method of selecting technical committees, not in the belief that it is a final or perfect method of selection, but with the reasonable hope that it will prove, with the harmonious co-operation and forbearance of all concerned, at least a practicable working method to meet the existing calls for organized scientific professional work among public health laboratory workers.

Certain sections of the constitution which show the definite co-ordination of this plan, and also the flexibility of the committees and their responsibilities to the section are Sections 2, 4, 27 (1st two par. only), 28, 29, 30 (see Constitution, Laboratory Section Transactions, Part II, 1905).

It is sincerely hoped that all public health laboratory workers will recognize the earnest effort which lies at the basis of this policy, and co-operate in this solution of the problem.

The subjects on which the council desire that you express your preference are as follows:

A. Committees already appointed for this year.

1. Standard Methods of Water and Sewage Analysis.*
2. Standard Methods of Bacterial Milk Analysis.

If you are particularly interested in the above work, an expression to that effect should be made in order to guide the council in making appointments another year, and that such men might have the opportunity of acting as associates during the present year.

B. Proposed Committees.

3. Standard Methods of Chemical Milk Analysis.
4. Standard Methods of Bacterial Diagnosis of Diphtheria.
5. Standard Methods of Bacterial Diagnosis of Typhoid.
6. Standard Methods of Bacterial Diagnosis of Tuberculosis.
7. Standard Methods for the Diagnosis of Rabies.

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* Since the above was written the Council has voted to restrict the work of the present committee to chemical methods and to establish a committee to consider Bacterial methods.

8. Standard Methods for the Diagnosis of Syphilis.
9. Standard Methods for the Diagnosis of Glanders.

(On the above, interpretation of results will receive attention as well as technique.)

10. Standard Methods for the Preparation of Diphtheria Antitoxin.
11. Standard Methods for the Preparation of Vaccine.
12. Standard Methods for the Preparation of Tuberculin.
13. Standard Methods for the Preparation of Mallein.
14. Standard Methods for the Bacterial Analysis of Air.
15. Standard Methods for testing Embalming Fluids.
16. Committee on Mailing Infectious Material.

Suggestions to the council for any advantageous or progressive modifications of the plan adopted this year for incorporation in later work will be highly welcome.

A prompt reply will very greatly facilitate the work.

For the Council,

(Signed) B. R. RICKARDS,
Secretary, Laboratory Section.

November 11, 1907.

EDITOR AMERICAN JOURNAL OF PUBLIC HYGIENE,
Boston, Mass.

Dear Sir: As a member of the Executive Committee of the American National Red Cross, I have been requested to forward to you the enclosed Resolutions, with the hope that you may find it expedient to kindly print them in your publication and lend what assistance you can in discharging the international duty assumed by this country, in agreement with all the great powers, of protecting the Red Cross name and insignia from any use save that agreed upon by the Treaty of Geneva.

In cases where the name and insignia are used as trademarks, the suggestion would be of value that their use should

be gradually eliminated, within the next three or four years, in conformity with the provisions of the Treaty that the prohibition of the use of the emblem and name should be enforced not later than five years after the Treaty went into effect.

Very truly yours,

R. M. O'REILLY,

Surgeon General, U.S. Army, and Member of the Executive Committee, the American National Red Cross.

(Resolutions adopted by the Executive Committee of the American National Red Cross, October 18, 1907.)

WHEREAS, By international agreement in the Treaty of Geneva, 1864, and the revised Treaty of Geneva, 1906, "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross" were adopted, to designate the personnel protected by this Convention, and

WHEREAS, The Treaty further provides (Article 23) that "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross can only be used, in time of peace or war, to protect or designate sanitary formations and establishments, the personnel and material protected by this Convention," and

WHEREAS, The American National Red Cross comes under the regulations of this Treaty, according to Article 10, "volunteer aid societies, duly recognized and authorized by their respective Governments," such recognition and authority having been conferred upon the American National Red Cross, in the Charter granted by Congress, January 5, 1905, Sec. 2, "The corporation hereby created is designated as the organ-

ization which is authorized to act in matters of relief under said Treaty," and, furthermore,

WHEREAS, In the Revised Treaty of Geneva, 1906, in Article 27, it is provided that "the signatory powers whose legislation should not now be adequate, engage to take or recommend to their legislatures such measures as may be necessary to prevent the use by private persons, or by societies other than those upon which this Convention confers the right thereto, of the emblem or name of the Red Cross or Geneva Cross,"

Be it resolved, That the Executive Committee of the American National Red Cross requests that all hospitals, health departments and like institutions kindly desist from the use of the Red Cross, created for the special purpose mentioned above, and suggests that for it should be substituted some other insignia, such as a green St. Andrew's Cross on a white ground, to be named the "Hospital Cross," and used to designate all hospitals (save such as are under the Medical Departments of the Army and Navy and the authorized volunteer aid society of the Government), all health departments and like institutions, and, further,

Be it resolved, That the Executive Committee of the American National Red Cross likewise requests that all individuals or business firms and corporations who employ the Geneva Red Cross for business purposes, kindly desist from such use, gradually withdrawing its employment and substituting some other distinguishing mark.

January 6, 1908.

Editor American Journal of Public Hygiene:

Will you kindly insert the following in your Journal giving it as prominent a place as possible?

The writer desires information regarding any alleged recoveries or cures of inoperable or recurrent carcinoma of the mammary gland.

If any case or cases are known to anyone who reads this circular, and can be authenticated by facts as to the history and condition prior to recovery and the length of time which has elapsed since recovery, such information will be much appreciated and duly acknowledged.

Any well-authenticated reports of recoveries from carcinoma located in other parts than the mammary gland will be welcomed.

Cancer paste cures, X-ray cures, radium cures, or cures as result of surgical operation are not wanted.

Hearsay cases are not wanted, unless accompanied by name and address of person who may give knowledge first hand.

Address, HORACE PACKARD,
470 Commonwealth Ave., Boston, Mass.

The Hodgkins Fund Prize of $1,500 is offered by the Smithsonian Institution, Washington, D.C., in accordance with the following announcement:

SMITHSONIAN INSTITUTION

HODGKINS FUND PRIZE

In October, 1891, Thomas George Hodgkins, Esquire, of Setauket, New York, made a donation to the Smithsonian Institution, the income from a part of which was to be devoted to "the increase and diffusion of more exact knowledge in regard to the nature and properties of atmospheric air in connection with the welfare of man."

In the furtherance of the donor's wishes, the Smithsonian Institution has from time to time offered prizes, awarded

medals, made grants for investigations, and issued publications.

In connection with the approaching International Congress on Tuberculosis, which will be held in Washington, September 21 to October 12, 1908, a prize of $1,500.00 is offered for the best treatise that may be submitted to that Congress "On the Relation of Atmospheric Air to Tuberculosis."

The treatise may be written in English, French, German, Spanish or Italian. They will be examined and the prize awarded by a Committee appointed by the Secretary of the Smithsonian Institution in conjunction with the officers of the International Congress on Tuberculosis.

The right is reserved to award no prize if in the judgment of the Committee no contribution is offered of sufficient merit to warrant such action.

The Smithsonian Institution reserves the right to publish the treatise to which the prize is awarded.

Further information, if desired by persons intending to become competitors, will be furnished on application.

CHARLES D. WALCOTT,
Secretary, Smithsonian Institution.

Washington, February 3, 1908.

BOOK REVIEWS

Clean Water and How to Get It. By ALLEN HAZEN, *Member American Society of Civil Engineers. John Wiley & Sons, New York*, 1907.

In the present day when men from various pursuits are called to serve their city or state in some political office, it is essential that they become familiar with the different departments with which they have to deal. Many technical books may have already been written on the subjects on which they wish to be informed, but books which treat of the practical principles and facts may be wanting. To fill such a need in the department of water supply this book, on "Clean Water and How to Get It," was written. It is for beginners, but especially for those who have power to act in a way to bring about better conditions, for those, "who wishing to serve their cities well, can perhaps be aided in doing it by very simple statements as to some matters."

In the first five chapters Mr. Hazen discusses the different sources of supply, their characters and adaptability for use, illustrating his points very clearly by brief but adequate descriptions of specific city works. In a very simple way he explains what hardness, turbidity and color are, to what due and how best they can be removed. In detail, he describes the mechanical, the slow sand, and intermittent filters, and shows why and how each is good and under what conditions each is best. Then, that the book may be complete, he mentions the various parts of water works, their size according to need for consumption, for manufacturing, for fire service, with a view, too, to the pressure required. He deals also with the means of suppression of waste, and fair charges, in connection with the cost of construction and maintenance.

The book on the whole is a comprehensive, practical view of the entire subject, giving a general idea as well as specific in some cases of meeting almost any problem in connection with securing a new supply or improving an old one. It bristles with facts presented in excellent English. From reading it one would be able to see the necessary requirements, would be able to follow intelligently the methods proposed by an expert, and understand why under particular conditions certain devices are best, in short would be made more competent to fill his position as a man interested in water works.

R. S. WESTON.

Physician's Visiting List, 1908. *P. Blakestons Son & Co., Philadelphia, Pa.*

An orderly system of keeping engagements, records of visits made, accounts and general memoranda, is an invaluable aid to the busy practitioner. Many an important item is lost if not noted at the time. The usefulness of this book is too well known to need further comment.

BOOKS AND PAMPHLETS RECEIVED.

Report — Michigan State Board of Health.

Trachoma — Its Character and Effects. By Passed Assistant Surgeons T. CLARK and J. W. SCHERESCHEWSKY, *Washington, D.C., Government Printing Office.*

Transactions of the Fifth Annual Conference of State and Territorial Health Officers with the U.S. Public Health and Marine Hospital Service, Washington, May 29, 1907.

Cosmetic Surgery. By CHAS. C. MILLER, M.D. *Published by the author,* 70 *State Street, Chicago.*

Report of the Seventh Annual Conference of Sanitary Officers of the State of New York, 1907.

Eleventh Annual Report of the North Carolina Board of Health.